REPORT RESUMES

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A STUDY OF POTENTIAL UTILIZATION OF RETIRING MILITARY PERSONNEL IN VOCATIONAL AND TECHNICAL EDUCATION PROGRAMS. FINAL REPORT.

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THE TECHNICAL FEASIBILITY OF DEVELOPING A COMPUTER-ASSISTED SYSTEM FOR FITTING MILITARY RETIREES TO JOB VACANCIES IN VOCATIONAL EDUCATION PROGRAMS WAS INVESTIGATED. A SAMPLE OF RETIRING MILITARY PERSONNEL WHO HAVE OCCUPATIONAL AND INSTRUCTIONAL EXPERIENCE WERE SURVEYED TO EVALUATE THEIR POTENTIAL UTILIZATION IN VOCATIONAL EDUCATION PROGRAMS. MINIMUM STATE CERTIFICATION REQUIREMENTS FOR VOCATIONAL TEACHERS WERE DETERMINED, AND A COMPUTER-ASSISTED METHOD FOR FITTING OCCUPATIONAL AND INSTRUCTIONAL SKILLS OF SELECTED RETIRING MILITARY PERSONNEL TO AVAILABLE JOB OPPORTUNITIES WAS DEVELOPED. USING A DATA BASE COMPOSED OF THE PERSONAL HISTORIES OF 323 MILITARY RETIREES ACQUIRED BY QUESTIONNAIRES, THE INVESTIGATORS CONCLUDED THAT THERE WAS A NEED FOR VOCATIONAL EDUCATION TEACHERS, THAT MANY SUITABLE MILITARY RETIREES DESIRED TO FILL THIS NEED, AND THAT A COMPUTER-ASSISTED MATCHING OF RETIREES TO JOB VACANCIES IN VOCATIONAL EDUCATION WAS FEASIBLE. IN ADDITION, THE CONCLUSION WAS DRAWN THAT, DUE TO THE UNIQUE EDUCATIONAL AND OCCUPATIONAL REQUIREMENTS FOR FACULTY IN VOCATIONAL EDUCATION, THIS AREA SHOULD HAVE ITS OWN TEACHER PLACEMENT SYSTEM. (GD)

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FINAL REPORT

A STUDY OF POTENTIAL UTILIZATION OF RETIRING MILITARY PERSONNEL IN VOCATIONAL AND TECHNICAL EDUCATION PROGRAMS.

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ABSTRACT

This is the final report of a project designed to explore the feasibility of developing a computerized system to match military retirees to job vacancies for teachers and other support personnel in vocational and technical education. The project was supported under Section 4(c) of the Vocational Education Act of 1963, Public Law 88-210, by the Division of Adult and Vocational Research, Bureau of Research, U.S. Office of Education.

The project had five major objectives: (1) to determine the compatibility between military occupational specialties and skill areas in vocational education programs; (2) to identify from a sample of current retirees those who might qualify for teaching positions in vocational education; (3) to determine state certification requirements and needs for teachers in vocational education programs; (4) to develop an on-going method for matching retirees with specific skills, interests, and experience to available teaching positions in vocational education; and (5) to recommend, if needed and feasible, a military retiree-job matching system--its requirements, its possible sponsor(s), operator(s), and funder(s).

The principal conclusions of the study were as follows: (1) there is a widespread shortage of vocational education teachers, yet there are thousands of military retirees who are occupationally and educationally qualified for vocational teaching positions; (2) no simple conversion can be made from military specialty titles to vocational and technical education instructional areas; (3) after screening and analysis of military retiree backgrounds have been accomplished, it is feasible to use them as teacher candidates in vocational education programs; (4) the state certification requirements, both for education and occupational experience, pose no insuperable barriers to the employment of retirees; (5) there does not exist at the present time any systematic procedure nor method for channeling interested and qualified military retirees into the field of vocational education; (6) computer-assisted matching of retirees to job vacancies in vocational education is technically feasible and a computer

program to perform this function, using a data base of 323 retirees, is operational at the System Development Corporation; (7) while the ideal of a single computerized placement system for all levels of education is highly desirable, practical considerations rule this solution out for the present. The study concluded that it is desirable to establish a separate system to serve vocational education.

Based upon the study results, the following recommendations are proposed: (1) a military retiree-job matching, computer-assisted system should be designed and implemented as soon as possible; (2) the system's sponsor should be the American Vocational Association with the possible co-sponsorship of the American Association of Junior Colleges; (3) the system could be funded either individually or collectively by the Department of Defense, the Department of Labor, the Office of Economic Opportunity, and the U.S. Office of Education; and (4) the system's operator should be an independent, nonprofit organization, possessing appropriate computer facilities and experience in the fields of education, information system design, computer programming, and advanced data management technology.

The proposed system has the immediate goal of assisting in the placement of military retirees who are interested in and qualified for teaching positions in vocational education. However, the system should be designed in such a way that it could be readily expanded to serve (1) all the job-seeking needs of all military retirees, and (2) all the personnel-seeking needs of employers in vocational education.

In order to inform retirees of present career opportunities in vocational education, the following interim steps are recommended: (1) the American Vocational Association should prepare a two-page pamphlet concerning available teaching opportunities in vocational education for distribution to all military retirees; (2) the two-page pamphlet should also be distributed during all Department of Defense/U.S. Employment Service retirement orientation lectures and its contents reviewed in those lectures; and (3) the Department of Defense should revise its publication, Teaching: A Second Career, to include current information concerning vocational education.

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PREFACE AND ACKNOWLEDGEMENTS

For nearly a half century the various states have conducted programs of trade, industrial, and technical education under the sponsorship of several Acts of Congress. The most recent of these Acts are the Manpower Development and Training Act of 1962 and the Vocational Education Act of 1963. Trade, industrial, and technical education (hereafter referred to as vocational education)* is of national importance; vocational education is directly related to the economic stability of the nation; and it has become of critical concern in recent years as a result of the unprecented growth of technology.

Vocational education programs are conducted in a variety of schools throughout the nation. These schools are variously called junior colleges, community colleges, technical institutes, area vocational schools, and technical high schools. Vocational high schools now enroll one-fourth of all secondary pupils. Since enactment of the Vocational Education Act of 1963, the number of area vocational schools has increased by 50 percent, enrollment of secondary pupils has risen by 800,000 to 2.5 million, and the number of adult enrollees has increased by half a million to 2.4 million. All of the vocational education programs have as one of their prime purposes the pre-employment preparation of persons who desire to enter an occupation to begin their life's work or to acquire new skills in order to begin a new career. A critical problem is to locate qualified persons who will become instructors in such programs. It has been suggested that some of the most qualified potential instructors might be found among military personnel who are retiring from the service and who are seeking a second career.

In January 1966, under the provision of The Vocational Education Act of 1963, Section 4(c), System Development Corporation was awarded a contract by the U.S. Office of Education to survey a sample of retiring military personnel who possess occupational and/or instructional experience for their potential utilization in secondary and post-secondary vocational education programs; to determine the minimum certification requirements of the several states for vocational teachers; and to develop a method for fitting the occupational and instructional skills of selected retiring military personnel to available job opportunities in state vocational education programs.

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* This study does not deal with vocational occupations in such categories as agriculture, distributive, fisheries, and homemaking.

This document, TM-3302/000/01 is the final report of the SDC study. Part I provides an overall description of the project: statement of the problem, project objectives, and the project plan. Part II describes the procedures, methods, and results of the study. This section of the report is organized by project objectives and their related tasks. Part III presents the conclusions and recommendations. Project evaluation is discussed in Part IV. A bibliography is included. References cited throughout the report refer by number to items listed in the bibliography. The appendices include the survey instruments that were employed and representative computer printouts of retiree profiles.

We wish to express our appreciation to the Advisory Council of this project. The Advisory Council was convened twice. The first meeting, at the close of the planning phase, provided an opportunity for the Council to: (1) review the planning of the study; (2) provide specialized information, direction, and advice relative to the design of the study; and (3) recommend special areas of concern to be included in the study based upon the specialized knowledge and interest of each representative. The Council met a second time following the collection and treatment of data and prior to submission of the final report in order to: (1) review the findings, conclusions, and recommendations; (2) discuss recommendations for subsequent activities; (3) discuss effective methods for dissemination of results; and (4) provide recommendations concerning those individuals and organizations to be included in distribution of the final report.

The Advisory Council consisted of the following individuals: Mr. Arthur W. Barber, Deputy Assistant Secretary of Defense; Dr. Melvin L. Barlow, Director, Division of Vocational Education, University of California (Dr. Barlow also served as principal consultant to the project); Colonel Arthur A. Brackett, Reserve Officers Association of the United States; Dr. George L. Brandon, Head, Department of Vocational Education, College of Education, The Pennsylvania State University; Dr. John Caffrey, Director, Commission on Administrative Affairs, American Council on Education; Mr. Fred B. Irwin, Assistant to the President, International Brotherhood of Electrical Workers, representing the AFL-CIO; Dr. Edward L. Katzenbach, Jr., Vice President, Raytheon Company; Dr. Byrl R. Shoemaker, Director of Vocational Education, Department of Education, Ohio; Dr. Kenneth Skaggs, Vocational Education, American Association of Junior Colleges; Dr. John P. Walsh, Assistant Manpower Administrator, U.S. Department of Labor; and Dr. F. Parker Wilber, President, Los Angeles Trade-Technical College.

Appreciation is also extended to the Department of Defense for its cooperation in granting authority to conduct the military survey, for providing coordination, and for designating the individual service representatives with whom we worked. Our thanks are extended especially to: the Honorable Mr. Thomas Morris, Assistant Secretary of Defense (Manpower); General William W. Berg, USAF, Deputy Assistant Secretary of Defense; and Colonel Herbert B. Allen, USA, Assistant Director, Office of Compensation Affairs, Department of Defense.

Providing invaluable assistance and representing the individual military services were: Mr. Mark M. Biegel, Assistant for Special Studies, Bureau of Naval Personnel, Department of the Navy; Lt. Col. Earl R. Eichenberger, Retired Activities Branch, U.S. Army; and Mr. Frederick Keller, USAF Personnel Center, Randolph Air Force Base, U.S. Air Force. It was through the efforts of these gentlemen, and their organizations, that we were able to obtain the names and addresses of retirees to be included in the survey.

Special acknowledgement is offered to Dr. Melvin L. Barlow, the principal consultant to the project, who provided invaluable assistance in project planning, data analysis, and evaluation activities.

Dr. John F. O'Toole, Jr., Manager of Education Systems Projects, System Development Corporation, contributed significantly to project planning and provided general direction and consultation during the study.

PART I. DESCRIPTION OF THE PROJECT

A. Statement of the Problem

1. Personnel Shortages in Vocational Education

Numerous studies, surveys, and conferences concerned with problems in vocational education emphasize the current and predicted critical shortage of qualified teachers and support personnel such as administrators and counselors (7, p. 8; 12, p. 44; 13, p. 35; 31, p. 168; 37, p. 62).* The essential problem is the difficulty of finding the required numbers of persons with adequate occupational qualifications who also meet state educational certification requirements and matching them to existing job vacancies. Rapid technological change, combined with ever-increasing student enrollments and national expansion of vocational education programs, will serve to aggravate the shortage of qualified personnel in the years immediately ahead. The Vocational Education Act of 1963 and other federal enactments have created new sources of funds for vocational education. However, this legislation will fail of its purpose unless an adequate source of qualified instructors and support personnel can be found to implement the funded programs.

2. Potential Job Candidates in the Armed Forces - Military Retirees

The Armed Forces of the United States contain an almost inexhaustible supply of potential candidates for job vacancies in vocational education programs. As Secretary of Defense Robert S. McNamara has pointed out, the Department of Defense operates the largest training establishment in the world. This fact has been well documented (4, 11). Many technological advances are developed and applied in a military context, and there are hundreds of trained instructors in the services who work on the leading edge of technology and who have a wide variety of occupational skills and experience. At the present time, the skills and experience military servicemen have acquired at a cost of millions of dollars to the taxpayers are all too frequently lost when these men retire with twenty to twenty-five working years still ahead of them (10). Approximately 50,000 servicemen are retiring annually. The vocational education community has no method for determining on a regular and systematic basis whether or not these servicemen are potential job candidates.

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* Numbers in parentheses refer to publications listed in the bibliography.

3. The Need for a Military Retiree-Job Matching System

A recently completed study of the transition made by military retirees to civilian occupations found that fewer than half the retirees surveyed found employment in jobs related to their military specialties (10). The authors of the study cited conclude that "more intensive placement efforts might counteract the considerable slippage revealed in the survey." (10, p. xv.) Referring to the failure of educational institutions to employ military retirees in any substantial numbers, the authors write that "school systems and other nonprofit employers who are interested in recruiting military retirees must find efficient and direct channels for communicating with potential recruits. Such channels do not seem to be sufficiently developed at present." (10, p. 229). It would appear from the results of the study from which these quotations are taken that there is a genuine need for improved placement procedures and better channels of communication if military retirees are to find employment in vocational education. The problem will get worse with the passage of time. Although there are currently about a half million retirees, this number is expected to double during the next fifteen years. These figures do not take into account how many military retirees might become job seekers rather suddenly if the Vietnam war came to an end in the near future. It is essential, therefore, to determine the feasibility of designing a workable and efficient computerized method for matching military retirees to job vacancies in vocational education. This is the basic purpose of this project.

It should be made clear that a computerized man-job matching system is basically a referral system (1, 14, 20, 62). Such a system attempts to locate individuals from a large number of potential candidates who meet specified requirements for a particular job opening. The computer provides a list of candidates with their personal histories to prospective employers. The employer makes the decision to hire; and the job candidate decides whether or not to accept a job offer.

B. Project Objectives

This project contains five major objectives which derive from the statement of the problem as stated above. These objectives are logically and substantively related and are listed as follows:

1. Determine the compatibility between military occupational specialties and skill areas in vocational education programs;

2. Identify from a sample of current retirees those who might qualify for teaching positions in vocational education programs;

3. Determine state certification requirements and needs for teachers in vocational education programs;

4. Develop an on-going method for fitting military retirees with specific skills, experience, and educational qualifications to available jobs in vocational education;

5. Recommend, if needed and feasible, a military retiree-job matching system--its requirements, its possible sponsor(s), operator(s), and funder(s).

The accomplishment of these five objectives required a number of operational tasks which, in their totality, comprised the work of the project. To illustrate, our first objective above was divided into two tasks: (1) a literature survey of nationwide course offerings and skill areas in vocational education programs; and (2) a literature survey and job analysis to match military occupational specialties with skill categories in vocational education programs. The bulk of this report is presented in terms of this objectives/tasks format.

C. Project Plan

To accomplish the project objectives, the study was divided into four phases of effort as follows:

1. Planning Phase. During this phase, cooperation and coordination with the Department of Defense and each of the military services was accomplished; data collection instruments were designed; data collection procedures were established; and the Advisory Council was convened to review project plans.

2. Data Collection Phase. Surveys were conducted of a selected segment of the retiring military population and of state teacher certification requirements in vocational education; military skills and vocational education skills were analyzed so that compatibility could be determined; data were coded for analysis and computer treatment; and data treatment was planned.

3. Data Treatment and Analysis Phase. Data treatment and analysis were accomplished both manually and by use of a modified computer program based on an existing SDC query program called the Experimental Personnel Information Capability or EPIC. The modified EPIC program was used to demonstrate the feasibility of utilizing the computer to select

from the data base those retirees who fit specific state requirements and to conduct various types of arithmetical operations.

4. Final Report Phase. This phase began with a second meeting of the Advisory Council. The primary purpose of this meeting was to review the findings, conclusions, and recommendations of the project prior to their inclusion in the final report. The last activity was the writing of this report.

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PART II. TASK PROCEDURES, METHODS, AND RESULTS

A. Determine the Compatibility Between Military Occupational Specialties and Skill Areas in Vocational Education Programs

1. Task No. 1: Literature Survey of Course Offerings and Skill Areas in Vocational Education Programs

A literature survey of trade and technical education programs offered nationwide was undertaken. Approximately 140 different course offerings were found. By using several criteria, this large number was reduced to 27. The criteria used were these:

- Select a wide range of vocational education courses which reflect on a minor scale an equally wide range of military specialties;
- Avoid the selection of vocational education courses which are regional in character (Lumbering, Boat Building, Maritime Trades, etc.);
- Select courses that are limited in student enrollments and not frequently offered (Dry Cleaning, Optical Mechanics, Instrument Repair) as well as those that are popular and well-known;
- Eliminate courses which are offered by only one or a few states (Fur Manufacture, Barbering, Landscape Gardening, etc.);
- Eliminate courses which do not have an equivalent skill in the military services (Cosmetology, Interior Decorating, Clothing Design).

Two additional occupational skills (counseling and administration) were added to the 27 identified using the criteria listed above. The final selection of 29 occupational skills including the 27 types of course offerings appears in Table 1. The numbers in the left hand column are the code numbers identifying the occupational specialties in the SDC computer program developed for this project. These occupational categories have been used throughout the project, first, as the basis for selecting military retirees to receive questionnaires, and second, as a basis for matching retirees to jobs in vocational education programs. It should be noted that the last two categories in the Table (administration and counseling) were added after the questionnaires had been designed and mailed. These categories were used only for matching purposes after the questionnaires were returned.

2. Task No. 2: Literature Survey and Job Analyses to Match Military Occupational Specialties with Vocational Education Skill Categories

A literature survey and analysis of service manuals for the Air Force, Navy, and Army was made to determine each service's methods for classifying, describing, and identifying career fields and occupational specialties (40, 46, 48, 52, 53, 54, 55). In addition to the service manuals dealing specifically with the descriptions of specialties, the survey included examination of both service and Department of Defense documents and manuals containing conversion tables for military and civilian occupations and specialties (41, 47, 50, 51, 57, 60).

Analyses and study of the conversion tables, the occupational descriptions in the service manuals, and the job descriptions and codes in the Department of Labor's Dictionary of Occupational Titles (30) made it possible to match the 29 vocational occupational categories, described in the previous task, with equivalent or closely related occupational specialties in each of the three services. Matching tables based on these relationships were prepared for each service. Examples of matches from each service for the vocational skill area of Aircraft Mechanics are shown in Table 2.

Table 1

VOCATIONAL COURSES AND SKILL AREA CODES

Code	Meaning	Code	Meaning
1	Aircraft Mechanics	16	Machine Shop
2	Auto Body and Fender Repair	17	Medical Technology
3	Auto Mechanics	18	Nursing and Hospital Care
4	Business (ADP) Machine Repair	19	Optical Mechanics
5	Carpentry	20	Photography
6	Dental Technician	21	Plumbing and Pipefitting
7	Diesel Mechanics	22	Police Science
8	Drafting, Mechanical	23	Printing and Duplicating
9	Dry Cleaning	24	Radio and T.V. Repair
10	Electrical Appliance Repair	25	Refrigeration and Air Conditioning
11	Electricity/Electrical Technology	26	Sheet Metal Work
12	Electronic Data Processing (Operations)	27	Welding
13	Electronics	28	Administration
14	Food Trades	29	Counseling
15	Instrument Repair		

Table 2

MILITARY SERVICE SPECIALTY CODES FOR AIRCRAFT MECHANICS

U.S. AIR FORCE OFFICER SPECIALTY CODE

TRADE AND TECHNICAL OCCUPATIONAL FIELD	AFSC*	SPECIALTY TITLE
Aircraft Mechanics	4316	Aircraft Maintenance Staff Officer
	4344	Aircraft Maintenance Officer
	2816 or 2855	Aeronautical Engineer

U.S. AIR FORCE ENLISTED SPECIALTY CODE

43190	Aircraft Maintenance Superintendent
43170	Helicopter Technician
43171	Aircraft Maintenance Technician
43290	Aircraft Engine Superintendent
43270	Jet Engine Technician
43271	Reciprocating Engine Technician
43590	Flight Engineer Superintendent
43570	Flight Engineer Technician

U.S. ARMY OFFICER SPECIALTY CODE

MOS*	
671B	A/C Repair Tech., Non-rated
671C	A/C Repair Tech., Rated
4823	A/C Maintenance Officer

U.S. ARMY ENLISTED SPECIALTY CODE

671	Single-Eng. Airplane Mech.
672	Multi-Eng. Airplane Mech.
675	Single-Eng. Single Rotor Heli. Mech.
676	Single-Eng. Tandem Rotor Heli. Mech.
677	Multi-Eng. Single Rotor Heli. Mech.
678	Multi-Eng. Tandem Rotor Heli. Mech.
679	A/C Repair Supv.
681	A/C Engine Repairman
683	A/C Powertrain Repairman
686	Airframe Repairman

* AFSC - Air Force Specialty Codes
MOS - Military Occupational Specialties

U.S. NAVY OFFICER SPECIALTY CODE

TRADE AND TECHNICAL OCCUPATIONAL FIELD	NOBC*	SPECIALTY TITLE
Aircraft Mechanics	8192	Aircraft Maintenance Officer (Airframes)
	8190	Aircraft Maintenance Officer (General)
	8191	Aircraft Maintenance Officer (Powerplants)
	8176	Aircraft Maintenance Planning and Control Officer
	8177	Aircraft Maintenance Quality Control Officer
	8178	Aircraft Maintenance Task Supervisor
	A86100	Aircraft Mechanic
	8119	Aviation Maintenance Engineering Officer (Airframes)
	8118	Aviation Maintenance Engineering Officer (Gen'l)
	8120	Aviation Maintenance Engineering Officer (Jet Engines)
	8121	Aviation Maintenance Engineering Officer (Recipro. Engines)
	8112	Aviation Maintenance Field Representative
	8115	Aviation Maintenance Management Engineer
	8004	Aeronautical Engineering Officer, Aircraft Mechanical Equipment
	A29140	Educational Specialty (Aeronautical Engineering)
	A32420	Instructor, College (Aeronatuical Engineering)
	8138	Overhaul and Repair Engineering Officer
	8144	Overhaul and Repair Inspection Officer
	8148	Overhaul and Repair Officer

U.S. NAVY ENLISTED SPECIALTY CODE

NEC*	
ADJ	Aviation Machinist's Mate (Jet Engine Mechanic)
ADR	Aviation Machinist's Mate (Reciprocating Eng. Mechan.)
AD-6422	Jet Test Cell Operator
AD-6432	Helicopter Mechanic
AD-6492	Target Aircraft Mechanic
8303	C-121 System Maintenance
8309	A-5 System Maintenance

* NOBC - Navy Officer Billet Classifications
NEC - Navy Enlisted Classifications

U.S NAVY ENLISTED SPECIALTY CODE (continued)

NEC*	
8318	C-130 System Maintenance
8319	P-3 System Maintenance
8324	F-4 " "
8331	A-6 " "
8337	E-2 " "
8339	E-1 " "
8334	F-8 " "
8351	A-4 " "
8357	A-3 " "
8364	F-3 " "
8371	F-6 " "
8376	UH-2 " "
8377	SH-3 " "
8378	SH-34 " "
8381	S-2D " "
8394	DASH Technician
8251	Flight Engineer P-3
8252	Flight Engineer C-130
8262	Flight Engineer C-121

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* NEC - Navy Enlisted Classifications

B. Identify From a Sample of Current Retirees Those Who Might Qualify for Positions in Vocational Education

1. Task No. 3: Obtain by Questionnaire the Education and Skills of a Sample of Current Military Retirees

The matching tables described in the previous task were mailed to the personnel data centers of the Air Force, the Navy, and the Army with a request for the names and mailing addresses of all retirees with the listed specialty code numbers for either one month (July) or for 500 retirees per service. This request was based on the goal of obtaining approximately 100 completed questionnaires from each service.

Using the military specialty codes provided to them, the Air Force and the Army representatives mailed to SDC the names and addresses of personnel presumably holding those code numbers. The Air Force provided the names of 12 officers and 361 enlisted men retiring July 1. The Army provided the names of 51 officers and 230 enlisted men retiring by July 1, 17 officers retiring on August 1, and one officer retiring September 1. The Navy's response was quite different. This service provided the names of 362 officers and 1769 enlisted men. Approximately half of this total number were retiring by July 1 and the other half by August 1. However, this Navy list was not based on specialty codes. It was a list of all men retiring during June and July. Questionnaires were not mailed to Navy personnel on sea duty. The following table shows the numbers of retirees, by service, who were mailed questionnaires.*

Table 3

NUMBERS OF MILITARY RETIREES WHO WERE MAILED QUESTIONNAIRES

Service	Officers	Enlisted	Totals
Air Force	12	361	373
Navy	194	780	974
Army	51	230	281
Totals	257	1371	1628

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* See Appendix A.

The following table shows the number of questionnaires returned by each service, the percent of the total represented by each, and the number of questionnaires returned undelivered.

Table 4

QUESTIONNAIRES RETURNED BY MILITARY RETIREES

Service	Officers	Enlisted	Totals	% of Total	Undelivered
Air Force	4	81	85	22.5	25
Navy	55	202	257	26	54
Army	15	49	64	22.5	21
Totals	74	332	406	25	100

Out of the 406 questionnaires which were returned, a final total of 323 contained sufficient information to be included in the retiree data base. This data base was coded, keypunched, and placed on tape where it is available for man-job matching by computer.

2. Task No. 4: Evaluate the Use of Service Specialty Code Numbers for Matching Military Retirees to Vocational Skill Areas

Military retiree questionnaire returns, interviews with retirees, and interviews with representatives at the service personnel data centers have led to the inescapable conclusion that the services' specialty code numbers are not satisfactory for matching retirees to occupational skill categories in vocational education.

The individual's specialty code number does not always reflect his technical knowledge and training. This is commonly the case for enlisted men when they attain supervisory positions and for line officers. Thus, in the Air Force three or four technically different career ladders feed into a single superintendent's position which has its unique AFSC. To take one example, in the Metalworking Career Field, the Metalworking Superintendent has the AFSC of 53490. The superintendent with this AFSC may have his technical background in any one of four technical areas: machine shop, metals processing, sheet metal, or airframe repair. The superintendent's specialty code number, therefore, informs one that a man is a supervisor at the E-8 or E-9 grade level, but it does not inform one of his specialized knowledge and training. Similarly, in the Navy, an officer's NOBC informs one that the individual is a Nuclear Submarine Commander or a Pilot, but it does not provide information about his areas of technical expertise. A Naval officer may have both administrative experience and experience as an instructor, but this information would not be revealed by his specialty code number.

It was hoped that because the Navy was unable to provide names and addresses of retirees on the basis of specialty code numbers as requested and as provided by the Army and the Air Force, some unforeseeable advantages to the project might accrue. This proved to be the case. It provided further evidence that selecting retirees as possible candidates for positions as teachers, administrators, or counselors in vocational education based upon specialty code numbers is not a desirable procedure. It was found, for example, that some Navy line officers with the rank of Lt. Commander and Commander and with college degrees, some with higher degrees, were interested in second careers in vocational education (item #21 on the military questionnaire). But the specialty code numbers of these officers could not be matched to skill areas in vocational education. One such officer, a Commander, could not be matched by his specialty code number to any vocational skill area but wrote on his questionnaire that he was "already processing for teaching vocational subjects." He checked

Drafting and Machine Shop as the two skill areas in which he felt qualified to teach (item #24 on the military questionnaire). These officers who might be potential candidates for vocational education employment would not have been identified if the specialty code number procedure had been followed. It is likely that many potentially interested and qualified individuals in the other two services were not identified because the specialty code number procedure was followed.

Study of the questionnaire returns from Navy retirees also indicated that many individuals did have a good potential to become instructors in vocational education but this fact could not have been ascertained by the use of specialty code numbers. These men were specialists in such fields as Fire Control Technician, Damage Controlman, Gunner's Mate, etc., fields which could not be matched to the vocational skill areas.

3. Task No. 5: Interview a Sample of Current Military Retirees to: (a) Validate Questionnaires; (b) Determine Their Knowledge of and Interest in Vocational Education; and (c) Obtain Opinions on the DOD/USES Retirement Orientation Program

Some difficulties were encountered in interviewing retirees because of delays in receiving their names and addresses from the service personnel centers, the large number of retirees who were terminating their service in locations difficult to visit, and the lack of concentration of retirees in given locations, particularly in the case of Army personnel. As a result of the delays in receiving the names and addresses of retirees, a large number of retirees had already left the services before interviewing began. Interviews were held, in spite of this difficulty, in the homes of selected retirees who had provided their permanent home addresses on their questionnaires. These interviews varied in length from one-half hour to two hours depending upon the amount and kind of information the retiree was able or willing to provide. A total of twenty-six interviews were held. This number includes eight Air Force retirees, seventeen Navy retirees, and one Army retiree.

a. Validation of Questionnaires

Validation, for purposes of this study, was designed to determine whether or not the respondents understood the intent of the questions and whether or not they were able to give appropriate answers. To validate the questionnaire, a representative sample of retirees was interviewed, representative in the sense that there was no systematic bias in the sampling. The only items in the questionnaire which gave the retirees significant difficulty were question 8, which asks for Specialty Code Number; question 9, which asks for Specialty Title; and question 11, which asks for U.S. Armed Forces Institute (USAFI) courses taken (see Appendix A). These three questions resulted in confused replies because many of the retirees did not know their Specialty Code Numbers or their Specialty Titles, and they confused service training courses with USAFI courses. The answers to these three questions have not been used as selection criteria to match retirees to jobs.

b. Determine Their Knowledge of and Interest in Vocational Education

A majority of the retirees who were interviewed, expressed interest in teaching as a second career. Several volunteered the information that many of their associates would also be interested. Few of the retirees knew anything about vocational education and said they had not thought about it at all for second career possibilities until they had received the SDC project questionnaire. As one Chief Master Sergeant put it: "If there are openings for teachers in vocational education and if people like myself have the appropriate backgrounds, then somebody is not trying hard enough to reach us."

Almost all the retirees were surprised to learn that a college degree was not a mandatory requirement in all states for teachers of vocational education. The fact that military retirees are not aware of the differences in certification requirements between academic education and vocational education is hardly surprising. Outside of the field of vocational education itself, these distinctions, in discussions about teacher supply and demand, are frequently ignored. This is often true of scholarly studies as well as the mass media. For example, in their study of the transition of military retirees to civilian employment, Sharp and Biderman comment on the failure of educational institutions to employ a significant number of retirees and they relate this fact to the importance of the college degree as a condition of employment (10). Not once in their discussions of this problem do they differentiate between academic education and vocational education. This reflects the widespread tendency among professional personnel to neglect vocational education.

The Department of Defense has also tended to overlook the field of vocational education in its efforts to acquaint military personnel with education as a potential post-retirement career. For example, its publication on this subject, _Teaching: A Second Career_, is devoted to the problems facing the military retiree if he wants to teach at the college level or at the elementary or high school level in academic schools (56). The importance of securing the college degree is stressed throughout and the _field of vocational education is not even mentioned_.

It is not surprising, in light of the circumstances noted above, that if the military retiree thinks about education at all as a potential second career, he thinks of it as primarily academic education and then rules himself out as a possible candidate if he does not have the baccalaureate degree.

Although 44 of the 45 states surveyed do not require a college degree as a condition of employment in vocational education, all the states would require the retiree without the degree to acquire some academic credit beyond the high school diploma after employment is obtained. It was important, therefore, in the interviews with retirees to determine what their attitudes were toward returning to school. With the exception of one retiree who said he thought he was "too old," the men interviewed stated they would not object to going back to school if this was necessary, while teaching, to meet a state's teacher certification requirements. Several of the men were already planning to continue their education in junior and state colleges. In general, the attitude expressed was one of recognition of continuing education as a natural condition of contemporary civilian life no less than of life in a military environment.

c. Obtain Opinions on the DOD/USES Post-Retirement Orientation Program*

Before presenting what the retirees had to say about their experiences with the Department of Defense/U.S. Employment Service (DOD/USES) Post-Retirement Orientation Program, it is necessary to review briefly the history and nature of this program.

The Sharp and Biderman study of the transition of military retirees to civilian life covers the retirement experiences of men who left the service in 1963-64. They report that "available (job) counseling and information resources in the military and outside are little understood and used; 81 percent of the May 1964 retirees said they had used none at all and only 3 percent received counseling from the military." (10, p.x) The authors comment in a footnote, however, "that as a result of the introduction of new services the proportion (using counseling) would undoubtedly be higher for a survey conducted at a later date." (10, p.77)

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*Although the program is offered to servicemen prior to retirement, it is misleadingly named a "post-retirement program" (19).

The Sharp and Biderman study overlapped the publication of directives on a cooperative program between the Department of Defense and Department of Labor, Bureau of Employment Security, for providing employment orientation, counseling, testing, and placement assistance for military retirees (19). The first directives outlining the objectives of this program did not appear until early in 1964, hence the benefits of the program were not experienced by the retirees who participated in the Sharp and Biderman survey as they, in fact, noted.

The new cooperative post-retirement orientation program is described in a Navy publication dated 8 March 1964. The relevant sections read as follows:

> A job development and placement service, as such, is neither possible nor desirable within a military organization; however, it is important that a procedure be established whereby the career military member may be provided appropriate and timely counseling concerning civilian labor market conditions. The Bureau of Employment Security, Department of Labor, through its United States Employment Service, and the affiliated state employment agencies, is prepared to aid the retiree in obtaining this information and has developed a Cooperative Program for Employment Assistance to Military Personnel Scheduled for Retirement. This program will be inaugurated 1 April 1964 and is designed for presentation in two phases:
>
> a. Phase I is a comprehensive briefing session which will be conducted by the U.S. Employment Service for Navy personnel 12 to 18 months prior to the scheduled date of their retirement or transfer to the Fleet Reserve.
>
> b. Phase II is a direct employment assistance phase which generally will commence 3 months after the initial briefing or orientation session. Phase II consists of one or more working sessions at the military installation or the local employment service office.

This new cooperative program had been in effect approximately two years (April, 1964 - July and August, 1966) when the interviews reported in this section were conducted.

Although the interview sample from which the following experiences with the cooperative program was obtained is a very small one with respect to all military personnel who retired in the summer of 1966, the comments of the retirees suggest that more men may be now attending some form of pre-retirement second career orientation than was reported by Sharp and Biderman for an earlier "cohort" of retirees as quoted earlier. However, the interview data also suggest that the current program is still not completely satisfactory in the area of providing job market information to the retirees, and that a major source of difficulty is the conversion of military skills into civilian occupational categories.

Almost all of the retirees interviewed said that they had either attended a retirement orientation lecture prior to retirement or could have attended one if they had wanted to. Several did not attend scheduled orientations because they already had made their own arrangements for employment or knew what they wanted to do and did not need assistance from the service or the USES. A few wanted to attend but did not because of schedule conflicts.

The attitudes of the retirees toward the job counseling phase (Phase II) of the retirement orientation lectures were, in general, decidedly negative. All the informants described the orientation program as dealing primarily with administrative procedures related to retirement rather than with job opportunities as such. Several of the retirees said that no discussion of the job market occurred. Others stated that jobs were discussed, but only in very general terms such as the availability of jobs in sales, or that the retirees "should not settle in the San Diego area because job opportunities were scarce." One retiree reported attending two orientation lectures in which the same people presented similar talks about jobs but that the information was "vague."

In addition to the DOD/USES cooperative post-retirement orientation program lectures, the retirees also discussed other aspects of their service's retirement procedure. Several of the retirees referred to receiving a packet of papers and pamphlets dealing with retirement but, again, these were administrative in character and also described the various agencies which were available to help the retiree and the types of services they performed. These materials did not include information about jobs. One informant described the work of a "Retirement and Separation Branch" at his base as entirely administrative in nature with no information on employment opportunities provided. In this case there was no USES representative in the nearest town.

It was apparent from the interviews that post-retirement orientation lectures varied greatly, particularly with respect to the provision of job market information, depending upon the location of the retiree's last service assignment. Service centers in the heart of large cities, such as San Diego, have the facilities to provide more job market information than, for example, military bases in relatively isolated areas. One of the officers interviewed stressed the fact that the kind of post-retirement orientation program offered at a given location also depended largely upon the support given to it by the local commanding officer.

During the interviews, the retirees were asked whether or not they thought their service should provide more assistance to them in job seeking. Approximately half of the informants thought the services did not help enough, while half agreed with the retiree who said that the service "should not be an employment bureau." However, several of the retirees, including some who felt it was not the service's responsibility to help them find jobs, stated that their service ought to provide all retirees with data on their past duty assignments to aid them in the preparation of their resumes. One informant noted he had not yet prepared his resume, but that when he did, he would have to rely on his memory to reconstruct his job history. He concluded it would be helpful if the service could provide such information. Another retiree suggested the following: "...by a man's seventeenth year in service, his complete service record should be compiled in some form of data processing system. It should have the individual's experience, training, equipment used... areas of the world he has been in, his instructor background, etc. Such a central file is necessary because local files are incomplete. Any potential employer should have access to the file. The record should include a man's fitness reports or personal evaluations by his superiors."

A major problem which the retirees brought out in the interviews was the difficulty they were having in translating their service skills and experience into civilian occupational categories. There are few, if any, copies of military-civilian job conversion tables available to the retiree at military installations. The retirees who had seen and tried to use such tables reported them to be very inadequate, and the authors of this report, who have also used these conversion tables for the purposes of this study, agree with that conclusion. Thus, many retirees have no idea of the type of civilian job for which they might qualify and are handicapped at the outset in their exploration of the civilian job market.

Special categories of servicemen have unique problems in finding post-retirement employment. The personnel of the Navy who serve the last days of their enlistments while on sea duty are an obvious case in point. Another category is composed of those men terminating their service at geographically isolated bases. For such men, job hunting is reduced to a letter writing campaign if it is conducted at all, and, of course, for an undefined job market.

On the whole, the interviewers were favorably impressed by the caliber of the retirees interviewed. Most of the men were youthful in appearance and attitude; they were eagerly seeking challenging and interesting second careers; they were articulate, with a few exceptions, about their interests and capabilities; and, in general, they appeared to have a good potential, if carefully screened, for placement in vocational education programs.

The military services are aware of the job counseling inadequacies and weaknesses in the current program as noted above and are constantly striving to improve them. A pilot program to study and improve the employment assistance provided to retirees is currently being implemented in the Third United States Army Area at Fort McPherson, Fort Benning, and Fort Bragg. This program illustrates the kind of efforts being made by the services to implement DOD directives on employment assistance for retirees. The description of the program, quoted below, was provided by Lt. Col. E. R. Eichenberger, Chief of the U.S. Army's Retired Activities Branch, in a letter dated 26 September 1966.

> ### RETIRED PERSONNEL ASSISTANCE
>
> ### ADMINISTRATION OF PILOT PROGRAM
>
> 1. A pilot program to study and improve the Retired Personnel Assistance Program will be initiated within the

Third United States Army area. The program will be geared toward all phases of assistance to retiring and retired personnel with particular emphasis on employment assistance. At the end of one year the program will be thoroughly evaluated to determine the practicability of changes in Army-wide procedures.

2. An officer in at least the grade of Major will be assigned full time to each of the Retired Activities Sections at Forts McPherson, Benning, and Bragg. These officers should be familiar with the Army Regulations governing retirements and have a working knowledge of the benefits to which retired personnel are entitled. In addition, Headquarters Third United States Army will designate a project officer and such other assistants as needed.

3. The retired activities officer with the assistance and support of the installation commander will screen records and identify those individuals who have completed between 18 and 19 years of active Federal service. A control card will then be established, prepared in duplicate, with a copy for the post education officer (sample attached). Those personnel thus identified who have indicated an intention to retire, or will be mandatorily retired, will be invited and encouraged to participate in pre-retirement counseling as required.

4. General pre-retirement orientation sessions will be conducted monthly by the Retired Activities Officer. This session should not exceed 60 minutes. Phase I sessions will be conducted on a quarterly basis. Individual interviews will be conducted as needed.

5. Personal interviews will be held with each potential retiree at the time he enters the controlled program and as often thereafter as requested. The potential retirees will be given employment assistance individually, to include conversion of military skills to appropriate civilian occupational specialties, guidance in the preparation of resumes, testing by State Employment Service, labor market information, etc. The retired activities officer will request counseling and assistance from the post education officer and from personnel in the North Carolina and Georgia State Employment Offices to satisfy any pertinent needs identified as the result of interviews. In addition, it is suggested that the Georgia State Employment Service maintain a full time resident counselor at Fort Benning. There is precedent for this because a full time counselor from the North Carolina State Employment Service is stationed at Fort Bragg.

6. The Retired Army Personnel Handbook (DA Pamphlet 600-5) will be given to each member who has applied for retirement or is scheduled for mandatory retirement at least six months prior to the scheduled effective date of his retirement. This issue will be noted on his control card.

7. The retired activities officer will establish and maintain a library of employment publications, educational and training material, and any other material which may be of benefit in preparing the potential retiree for his transition to civilian life.

8. Contact will be made with the retiree and, if possible, he will be interviewed 3 months after the date of his retirement if he had no job to go to upon retirement; the interview will be held 6 months if he secured employment prior to retirement.

9. For a continuous evaluation of the Pilot Program, the retired activities officer will submit through the installation commander and Headquarters Third United States Army a report each month of progress and activities connected with this program. Format of the report will be developed at a later date. Copies of all reports and correspondence connected with this program will be furnished to Hq CONARC, ATTN: ATPER-PSD.

The implementation and effective operation of such a pilot program would undoubtedly resolve some of the problems described by the military retirees in the interviews reported above. It should be noted, however, that the program is experimental in nature; it is confined to the Army; and it is limited to a particular geographical area. It is not known at the present time to what extent this type of program is being implemented in other Army areas and in other services. But the creation of the program, itself, serves to support the remarks of the retirees that current programs in the area of employment assistance are not entirely adequate.

C. Determine State Certification Requirements and Needs for Teachers in Vocational Education Programs

1. Task No. 6: Survey by Questionnaire State Certification Requirements for Teachers in Vocational Education Programs

A questionnaire composed of two parts was mailed to 50 states (see Appendix B). Part I of the questionnaire was designed to obtain information on the minimum certification requirements of each state for teachers in vocational education programs. The areas investigated included (1) general education level required; (2) the years of occupational experience required; (3) postponement of requirements which are allowed; and (4) credit allowances granted to service personnel.

Of the 50 states which were mailed questionnaires, 45 states responded.* The states which did not respond were Kentucky, Michigan, New Jersey, North Carolina, and South Carolina. Table 5 illustrates the minimum certification requirements of the 45 states responding. Not illustrated in the table are the degrees of latitude exercised in many states wherein additional education may be substituted for part of the experience requirement. The column headed "H.S." refers to a high school diploma or the General Educational Development (GED) equivalent (33).

The major conclusion of the survey of state certification requirements for teachers in vocational education is that these requirements are not insurmountable barriers to the employment of military retirees. Forty-two of the states surveyed, for example, will grant a substandard or provisional certificate based on a high school diploma (or less in five states) and a range of occupational experience from one to eight years. Hence the vast majority of military retirees with technical skills would qualify in these states for minimum certification at least. It should be explained that with the granting of a provisional certificate to teach, most states require the completion of a prescribed number of units per year toward a regular certificate as a condition for renewal.

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* Wyoming did not answer the questionnaire but provided published information on credential requirements.

Table 5

MINIMUM STATE CERTIFICATION REQUIREMENTS FOR TEACHERS

STATE	EDUCATIONAL REQUIREMENT					OCCUPATIONAL EXPERIENCE REQUIREMENT (YRS.)									
	<H.S.	H.S.	1 YR. COL.	2 YR. COL.	BA/BS	1	1½	2	3	4	5	5½	6	7	8
ALASKA	X								X						
MISSOURI	X								X						
NEVADA	X								X						
OREGON	X								X						
WASHINGTON	X								X						
NEW YORK		X				X									
GEORGIA		X					X								
KANSAS		X					X								
NEBRASKA		X					X								
OKLAHOMA		X					X								
PENNSYLVANIA		X					X								
VIRGINIA		X					X								
ARKANSAS		X							X						
INDIANA		X							X						
IOWA		X							X						
MINNESOTA		X							X						
SOUTH DAKOTA		X							X						
ARIZONA		X								X					
DELAWARE		X								X					
MONTANA		X								X					
COLORADO		X									X				
ILLINOIS		X									X				
MARYLAND		X									X				
TEXAS		X									X				
WISCONSIN		X										X			
FLORIDA		X											X		
LOUISANA		X											X		
MAINE		X											X		
NEW HAMPSHIRE		X											X		
TENNESSEE		X											X		
UTAH		X											X		
VERMONT		X											X		
WEST VIRGINIA		X											X		
ALABAMA		X												X	
CLAIFORNIA		X												X	
HAWAII		X												X	
NORTH DAKOTA		X												X	
OHIO		X												X	
RHODE ISLAND		X												X	
CONNECTICUT		X													X
IDAHO		X													X
MASSACHUSETTS		X													X
NEW MEXICO			X						X						
MISSISSIPPI				X				X							
WYOMING					X				X						
	TECHNICAL EDUCATION														
ALABAMA				X[1]											
VERMONT				X					X						
IDAHO					X[2]										
WISCONSIN					X		X								
INDIANA					X			X							
MONTANA					X			X							
PENNSYLVANIA					X			X							
OHIO					X					X					

1 - BA/BS OR APPLICABLE INSTRUCTING EXPERIENCE.
2 - DEGREE IN SPECIALTY TO BE TAUGHT.

only 8 of the 45 states responding reported distinguishing in their teacher certification requirements between Trade and Industrial programs and Technical programs.

2. Task No. 7: Survey by Questionnaire the Need for Teachers in State Vocational Education Programs

Part II of the state questionnaire was designed to obtain from each state the number of full-time teachers during three selected time periods who taught the 27 types of courses identified in Task No. 1. In addition to these historical data, the questionnaire requested the states to specify the anticipated number of unfilled teaching positions in the 27 course areas for academic year 1966-67. Space was provided for the states to list vocational courses other than those mentioned in which they anticipated teacher shortages.

Whereas all the states responding attempted to answer all the questions in Part I of the questionnaire, six states did not answer Part II. These states were California, Delaware, Mississippi, Missouri, Montana, and Wyoming. Several other states only provided teacher employment data for one or two of the four academic years for which information was requested. Teacher employment data for Michigan and New Jersey were obtained from a survey conducted by the Ohio Center for Vocational and Technical Education. The states in general do not have available historical data on the number of full-time teachers employed in specific skills or course categories, i.e., Aircraft Mechanics, Welding, etc., nor can they make realistic projections of future needs for teachers.

Table 6 presents a summary of the projected need for teachers by skill areas for the school year 1966-67 as reported by the state directors of vocational education. Some states, as shown in the Table, reported there were job vacancies but did not provide numbers. Note that a total of 820 job vacancies in specific skill areas are reported, while shortages of teachers for 124 skill areas are reported with the actual number of vacancies not given. Other states provided numbers of job openings in skill areas other than those requested and listed in the Table. Thus, the total number of job vacancies is much greater than 820. Two states, Massachusetts and Connecticut, indicated no anticipated need for teachers.

3. Task No. 8: Interview State Directors of Vocational Education to Validate Questionnaires and to Obtain Additional Information

Interviews were held with the state directors of vocational education or their representatives in California, Florida, Georgia, Maryland, and Wisconsin. A planned visit to New Jersey was cancelled since this state did not respond to the state questionnaire or to the follow-up letter. The selection of these states was based on the following criteria: (a) larger than average number of schools offering vocational education programs; (b) larger than average number of courses offered; (c) representative geographic spread; (d) representative spread in the size of the states; and (e) reported shortages of vocational education teachers. The data for the selection of the states were reported in Education For A Changing World of Work (31).

A structured interview guide was prepared for each state. These instruments provided a basis for systematically reviewing a wide range of topics. Appendix C contains, as an example, the structured interview used in Florida. The typed answers to the questions were provided by Florida vocational education officials in addition to the data they provided orally during the interview. The questions in the interview instruments were designed using data obtained from the state questionnaires and from published data pertaining to state certification requirements (28).

The major objectives of the state interviews were: (a) to validate the state questionnaires; (b) to verify information on state certification requirements for vocational education teachers; (c) to obtain information on state certification requirements and needs for counselors and

Table 6

ANTICIPATED JOB VACANCIES, 1966-1967, BY SKILL AREA AND STATE

	ALABAMA	ALASKA	ARIZONA	ARKANSAS	CALIFORNIA	COLORADO	CONNECTICUT	DELAWARE	FLORIDA	GEORGIA	HAWAII	IDAHO	ILLINOIS	INDIANA	IOWA	KANSAS	KENTUCKY	LOUI	
1. AIRCRAFT MECHANICS	0		4	0		-					0	0	+	3	+	0		0	-
2. AUTO BODY AND FENDER REPAIR	0		2	0		-					0	-	0	-		-		0	2
3. AUTO MECHANICS	0		2	0		-		NOT FILLED IN - STATED NEED IN ALL TRADES AND OCCUPATIONS FOR 1966-1967.			0	-	-	-	+	0		0	1
4. BUSINESS (ADP) MACHINE REPAIR	0		0	0		-					0	0	+	-	+	0		0	1
5. CARPENTRY	0		4	0		1					-	0	+	2	+	2		0	4
6. DENTAL TECHNICIAN	-		2	-		2					-	3	+	-		-		-	-
7. DIESEL MECHANICS	0		-	-		-				SHOWS ONLY FIGURES FOR 1963-1964 AND 1965-1966.	1	-	+	-		-		0	-
8. DRAFTING, MECHANICAL	-		1	-		-					-	-	-	-		0		-	-
9. DRY CLEANING	0	SHOWS ONLY FIGURES FOR 1963-1964.	-	-		-					-	-	-	-		-		-	-
10. ELECTRICAL APPLIANCE REPAIR	0		-	-		-			SHOWS ONLY FIGURES FOR 1963-1964.		0	0	+	5	+	5	QUESTIONNAIRE NOT RETURNED.	10	10
11. ELECTRICITY/ELECTRICAL TECHNOLOGY	-		-	-		-					-	-	+	-	+	-		-	-
12. ELECTRONIC DATA PROCESSING (OPERATIONS)	0		6	0	NOT FILLED IN	2	REPORT NO NEEDS.				0	0	+	6	+	2		0	10
13. ELECTRONICS	3		-	-		-					-	0	-	-	+	-		4	-
14. FOOD TRADES	0		2	-		0					1	-	+	6	+	-		0	3
15. INSTRUMENT REPAIR	6		5	0		-					1	0	+	4	+	-		0	6
16. MACHINE SHOP	12		-	0		-					1	1	+	-	+	0		5	-
17. MEDICAL TECHNOLOGY	4		1	0		0					1	-	+	-	+	3		0	10
18. NURSING & HOSPITAL CARE	0		1	0		0					0	1	+	1	+	0		0	-
19. OPTICAL MECHANICS	0		-	-		-					-	-	-	2		-		-	-
20. PHOTOGRAPHY	5		3	0		-					0	1	+	3	+	3		0	3
21. PLUMBING & PIPEFITTING	0		1	0		1					0	1	-	-		0		3	-
22. POLICE SCIENCE	2		1	-		-					0	0	+	0	+	1		-	1
23. PRINTING	0		8	0		1					0	0	-	2		1		0	13
24. RADIO & T.V. REPAIR	0		-	-		-					-	0	-	-	+	-		-	-
25. REFRIGERATION AND AIR CONDITIONING	0		15	0		4					1	7	+	6	+	3		0	12
26. SHEET METALWORK	0		2	0		2					2	3	+	3	+	1		0	2
27. WELDING	0		2	-		-					0	0	0	-		-		4	-
	32		62	0		13					8	17	17 +	43	19 +	21		26	78

+ = REPORTED NEED WITHOUT INDICATING NUMBERS

- = NO COURSES OF THIS TYPE TAUGHT

0 = HAVE EMPLOYED IN PAST BUT NONE ANTICIPATED FOR 1966-1967

TABLE 6. ANTICIPATED JOB VACA

MAINE	MARYLAND	MASSACHUSETTS	MICHIGAN	MINNESOTA	MISSISSIPPI	MISSOURI	MONTANA	NEBRASKA	NEVADA	NEW HAMPSHIRE	NEW JERSEY	NEW MEXICO	NEW YORK	NORTH CAROLINA	NORTH DAKOTA	OHIO	OKLAHOMA	OREGON	PENNSYLVANIA	RHODE ISLAND	SOUTH CAROLINA	SOUTH DAKOTA	TENNESSEE	TEXAS	UTAH	VERMONT	VIRGINIA	WASHINGTON	WEST VIRGINIA	WISCONSIN	WYOMING		
-	4	REPORT NO NEEDS.	0	4	NOT FILLED IN.	NOT FILLED IN.	NOT FILLED IN.	1	-	0	+	SHOWS ONLY FIGURES FOR 1965-1966.	0	QUESTIONNAIRE NOT RETURNED.	2	+	2	SHOWS ONLY FIGURES FOR 1963-1964	+	-	QUESTIONNAIRE NOT RETURNED.	0	2	0	0	0	2	0	2	4	QUESTIONNAIRE NOT RETURNED.	30	5+
2	1		0	2				2	-	0	0		0		0	+	1		0	2		-	3	0	0	0	0	0	1	-		16	1+
1	4		+	3				2	-	-	+		+		0	+	2		0	-		-	3	4	0	-	2	+	2	2		27	6+
1	5		0	2				2	-	-	+		+		0	+	1		0	-		0	2	2	-	0	-	+	1	-		16	6+
4	3		0	1				2	-	0	+		0		0	+	1		+	-		0	0	0	1	0	2	+	2	4		29	6+
-	0		+	-				-	-	-	-		-		-	-	-		-	-		-	-	-	1	-	-	+	0	-		8	3+
-	2		0	2				-	-	-	0		+		0	-	1		+	-		-	-	-	-	-	-	+	0	-		6	4+
-	-		-	0				-	-	-	0		+		-	-	1		-	-		-	0	-	1	-	-	+	-	-		3	2+
-	-		-	1				-	-	-	-		0		-	-	-		-	-		-	-	-	1	-	-	0	-	-		2	
10	4		+	6				-	-	-	+		+		0	+	-		+	-		-	10	0	2	-	10	+	-	10		72	8+
-	2		+	2				2	0	-	-		+		-	+	-		+	-		4	-	-	1	-	-	+	-	-		11	7+
10	5		+	6				2	0	0	+		0		0	+	1		+	8		0	2	4	0	0	3	+	2	5		64	7+
-	1		+	2				-	-	-	+		-		-	+	-		0	-		-	-	-	0	-	-	0	1	-		11	4+
3	6		+	6				4	-	0	0		+		-	+	-		+	-		4	0	0	2	0	-	+	1	-		35	7+
6	4		+	4				2	7	0	+		-		0	+	2		+	6		0	2	0	0	0	6	+	4	3		62	7+
-	2		+	4				2	-	0	-		-		0	-	-		+	-		-	-	0	0	-	-	+	1	5		33	5+
10	5		0	2				4	-	0	0		+		0	+	2		+	6		3	1	0	-	0	0	+	1	5		48	6+
-	3		+	2				2	-	-	-		-		0	+	2		0	-		0	2	2	2	-	0	0	1	-		19	4+
-	0		-	-				-	0	-	-		-		-	-	-		-	-		-	-	0	-	-	-	0	-	-		2	
3	5		+	8				0	5	0	+		+		1	+	2		+	6		0	0	2	0	0	5	+	2	5		59	8+
-	0		-	4				2	-	-	-		0		0	+	2		0	-		0	-	0	0	-	0	+	2	2		18	3+
1	1		-	2				1	-	-	0		+		-	+	-		-	-		2	-	0	2	-	-	+	-	-		13	5+
13	5		0	4				4	0	0	0		+		-	+	12		+	9		0	7	0	0	0	5	+	-	-		71	4+
-	2		0	4				-	-	-	-		-		0	-	-		-	-		0	-	-	-	1	-	0	1	-		8	1+
12	6		+	6				4	1	0	+		+		3	+	10		+	9		0	6	0	0	0	10	+	2	5		110	8+
2	4		0	6				2	0	0	0		+		0	+	2		+	-		0	0	0	0	0	0	+	1	3		33	6+
-	0		+	3				1	-	-	0		0		-	0	2		0	-		0	-	0	2	-	-	-	0	-		14	1+
78	74		13+	86				41	13	0	10+		13+		6	19+	46		14+	46		13	40	14	15	1	45	19+	27	53		820	124+

TOTAL JOB VACANCIES

TOTAL SKILL AREAS WITH JOB VACANCIES IN ALL STATES

CANCIES, 1966-1967, BY SKILL AREA AND STATE

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administrators; (d) to obtain additional information, if possible, on anticipated teacher shortages; (e) to explore ideas on the organization which might assume responsibility for operating any proposed military retiree-job matching system; and (f) to determine what results the states have had in using retired military personnel in their vocational education programs.

a. Validation of Questionnaires. Only one important problem was frequently reported by the states in attempting to fill out the questionnaires. Florida, Maryland, and Wisconsin differentiate in their teacher certification requirements between Trade and Industrial Programs and Technical Programs. This distinction had not been made explicit on the state questionnaire format. However, these three states plus five others which were not interviewed made these distinctions clear by writing in this information on their questionnaire return. With this qualification, the questionnaire was validated.

b. Verify Information on State Certification Requirements. As noted above, Wisconsin, Maryland, and Florida reported differentiating between Trade and Industrial programs and Technical programs for teacher certification requirements. Wisconsin expects teachers of Trade and Industrial programs to have one-third of their training in academic subjects and two-thirds in the skill area to be taught, while teachers of Technical programs are expected to have the opposite background. Maryland reported that teachers of T & I programs were expected to have 70 percent of their training in the skill area to be taught and 30 percent in academic subjects with the opposite background for teachers of Technical programs. Florida reported that technical courses are closely related to industrial courses but usually are more concerned with theory and the use of instruments whereas the latter focus upon the development of skills with tools and machines.

The information obtained about these distinctions in certification requirements between Trade and Industrial programs and Technical programs are limited to eight of the states in our survey, as noted above, and they are not standardized, in commonly defined terms, among those states. In this project, therefore, these requirements were not used as a basis for matching military retirees to jobs in vocational education. Any future, on-going matching system, however, should include these distinctions in its data base for selection purposes.

c. Obtain Information on Certification Requirements and Needs for Counselors and Administrators. With the exception of California, the states unanimously reported shortages of personnel in these areas as well as for teaching. The states are not interested in hiring military retirees directly from the service as counselors or administrators. They prefer their counselors and administrators to come from the ranks of experienced vocational education teachers. The relevant certification requirements for employment of military retirees, therefore, would be the teacher certification requirements.

d. Information on Anticipated Teacher Shortages. The state directors or their representatives who were interviewed, with the exception of California, reported that there were shortages of vocational teachers in all occupational fields.* They expressed interest in the objectives of the SDC project and stated they would be interested in receiving the names and addresses of qualified military retirees as soon as possible.

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* California has a reported teacher shortage in such areas as agriculture and home economics, but none reported in trade, industrial, or technical education programs (39).

The interviews corroborated the fact which the questionnaires had revealed that it is difficult, if not impossible, to obtain accurate data on the numbers of teachers employed by skill areas and data on anticipated teacher shortages. Records may be kept on the total number of teachers or other personnel employed, but these data are not broken down by skill areas.

The interviews brought out the fact that questionnaire responses on teacher employment would not reveal the extent of the teacher shortage or the demand even if all states had supplied this information and for each year requested. With the exception of California, the state directors or their representatives asserted that many courses for which there is a demand are not offered because no teachers are available, and that their states lack the funds and the personnel to undertake the recruiting necessary to find teachers for such courses. Since these courses are not offered, there is no official school record of a lack of teachers for them.

e. To Explore Ideas on Organization for Operating Retiree-Job Matching System. No consensus was expressed by the state representatives about a possible organization which might operate any proposed retiree-job matching system. Comments on the possible role of the U.S. Employment Service as a system operator ranged from an extremely negative assessment to a willingness to work with the USES in recruiting personnel for vocational education.

f. State Experience Using Retired Military Personnel as Employees. All states reported they were satisfied with the performance of retired military personnel in their vocational education programs and would be interested in employing more. Non-commissioned officers were preferred over officers since the latter group tend to have unrealistic expectations about salaries and the type of position for which they might qualify. An assistant state director for vocational education stated that in his experience military retirees make better instructors than men with backgrounds only in a trade since military personnel are experienced at course planning and do not "freeze" in front of a class.

This positive attitude toward the use of military retirees as teachers in a civilian environment expressed in the interviews is corroborated by an independent study. Dr. James T. Rogers of Florida State University conducted a study of sixty-six retired military personnel teaching in seventeen Florida public junior colleges during the 1963-64 academic year (24). The report of the study which is available at this writing unfortunately does not identify the types of courses taught or the educational level of the retirees. However, some of the conclusions reached by Dr. Rogers are significant and worth repeating here since they reveal the ability of military retirees to adjust to teaching in a civilian environment, their effectiveness as teachers, and their acceptance by the students.

The methods used by Dr. Rogers included questionnaires and an analysis of the Teacher Evaluation Form, TE-1, by means of which the performance of the retirees could be compared with career teachers.

The major conclusions reached by Dr. Rogers may be briefly paraphrased. The analysis of the TE-1 data revealed "no statistically significant differences...between retired military personnel and career teachers...." Dr. Rogers reports that "retired military teachers function in an average to above average fashion in performance of professional duties." Administrators who employed military retirees consider them to be "a valuable source of future junior college teachers" and they would not object to employing additional retirees given adequate screening and selection procedures and assuming the candidates were of the same high caliber as those currently employed. It is worth stressing one of Dr. Rogers' conclusions. He reports that most students felt there was no difference concerning the classroom environment of retirees as compared with career teachers, but that those who noted a difference "expressed a preference for the classroom environment of the retired military teacher." As for the retirees themselves, Dr. Rogers concludes that they "have experienced very little difficulty in making the transition from military to academic life" and they are satisfied with their choice of teaching as a second career.

The interest of some states in military retirees as a source of teachers in technical education programs is evidenced by a new teacher-training program which is being conducted by the Department of Industrial Education of the University of Tennessee.* The program will provide a full academic year of teacher-training for veterans and military retirees in such subjects as welding, machining, electronics, and drafting design and will give credit toward a Bachelor of Science degree in industrial education.

The following representative case histories of military personnel, both officers and enlisted men, who accepted employment in vocational education after retiring from the service illustrate that men with military backgrounds can be successful in the field:

Case A, a graduate of the U.S. Naval Academy, retired from the Navy in 1961 with the rank of Commander. At retirement, Mr. "A" had served 25 years although he was but 43 years old. His specialty in the service was electronics and, upon retirement, he spent three years in the electronics industry. Since 1964, Mr. "A" has been an instructor in electronics at a junior college and has acquired a full credential. At present he is a vice president of the academic senate, is working toward a Master's degree in educational administration, and plans to remain in education as a second career.

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*Reported in the Navy Times, October 12, 1966, p. M4, and the Air Force Times, October 5, 1966.

Case B retired in 1954 with the rank of Lieutenant Colonel in the Marine Corps. He retired at age 40 after 20 years of service. Mr. "B" had a primary specialty as an aviation electronics officer and a secondary specialty as a naval aviator. He resumed his college education upon retirement from the service and in 1957 began teaching part-time in a vocational education program. In 1958 he assumed a position as a full-time instructor in vocational education which he held until late 1963. At that time, he assumed a position as associate professor of industrial education, a position which he held for six months. In 1964 he was appointed a consultant in industrial education for the California State Department of Education, a post he has held until the present time.

Case C retired from the Navy in 1965 at the age of 44 after twenty-three years of service. At the time of his retirement, Mr. "C" was Executive Officer of the Naval Air Maintenance Training Group. In addition to supervising and administering a variety of training programs during his years of service, he was also a qualified pilot. Mr. "C" obtained his Bachelor of Science degree in education in 1954, his Master of Arts degree in vocational technical education in 1961, and he is currently enrolled in a doctoral program at the University of California at Los Angeles. After his retirement, Mr. "C" served from October, 1965 to October, 1966 as deputy principal investigator for a study of the aviation mechanics occupation at U.C.L.A. He is currently assistant supervisor, trade and technical teacher education, at U.C.L.A.

Case D retired from the Navy in 1960 with the rank of Senior Chief Petty Officer. At the time of retirement he was 39 years old and had served for 21 years. His specialty in service was interior communications. While in service, Mr. "D" continued his education whenever possible and he enrolled in college immediately after separation from the service. In March of 1962 he had completed two and one-half years of college and was recruited as a vocational education teacher. He has since been awarded the Bachelor's and Master's degrees. In 1966 Mr. "D" was appointed department chairman.

Case E retired from the Navy at age 40 after 20 years of service. At the time of his retirement in 1959, he was a Chief Warrant Officer (W2). Mr. "E" had experience and training in many of the construction skills, such as metal working and carpentry, and was rated as a Ship Repair Technician. He had a high school diploma, and upon separation from the Navy attended college for two years before becoming a vocational education instructor. He started out teaching industrial arts and has since added classes in metal working. Currently, Mr. "E" has a Bachelor's degree plus 60 graduate units and should acquire the Master's degree and a full credential within the year.

Case F, a Chief Warrant Officer (W3), retired from the Navy in 1958 after 22 years of service. He was very young when he entered service and completed his high school education by taking USAFI courses. Mr. "F" had a service specialty as a photographer and has taught photography and auto shop since entering vocational education teaching in 1961. Between 1958 and 1961 he attended college full-time and has continued his education on a part-time basis since that time. He now holds a Bachelor's and a Master's degree and needs but one course and the dissertation to qualify for the doctorate.

The interviews conducted with the individuals in this limited number of case histories revealed several pertinent facts. In all cases the subjects were satisfied with the choice of vocational education as a second career and enthusiastically recommended that other retirees follow their example. The subjects indicated that chance played an important part in their choice of a second career. All the subjects interviewed intended to remain in vocational education as a second career. Although the sample of six case histories is small and the data only suggestive, when added to the information described in previous sections of this report, there is a strong implication that the retiree manpower pool is a significant source of potential personnel for the vocational education programs of the nation.

D. Develop an On-going Method for Matching Retirees With Specific Skills and Experience to Available Jobs in Vocational Education

1. Task No. 9: Determine Capability of Military Personnel Data Centers to Provide Comprehensive Retiree Histories on an On-going Basis

Interviews were held with officials at the three major service personnel data centers. Mr. Frederick Keller at the USAF Personnel Center, Randolph Air Force Base, Texas, was interviewed. Other USAF personnel who participated in this interview were Col. Oliver Little, Lt. Col. Brooks, Lt. Col. Mihalik, and Mr. Volluz. Also interviewed were Lt. Col. Earl R. Eichenberger and Major Callahan of the Army's Retired Activities Branch, TAGO, Washington, D.C., and Mr. Mark M. Biegel, Assistant for Special Studies, Bureau of Naval Personnel, Navy Annex, Washington, D.C. Commander James G. Evans of the Navy Annex provided specific information on the Navy system for handling retiree data.

A structured interview instrument was used in conducting the interviews with the representatives from the service personnel data centers (see

Appendix D). Copies of the instrument were provided to the service representatives in advance of the meetings.

Some of the more significant conclusions derived from these interviews can be briefly summarized. None of the services is able to provide complete individual retiree histories either manually or automatically for all retirees on a regular basis. The list of items on the retiree history in Appendix D indicates the kinds of data that would be required. Although the major proportion of potential vocational instructors would be enlisted men, the services cannot provide detailed information on education, training, and occupational experience for these men. More information is available for officers. The Air Force can provide automatic machine printouts containing names and addresses of all retirees some months prior to retirement. The Navy has the same capability. The Army can provide, by manual process, the names and addresses of officers before retirement, but the names and addresses of enlisted men only after retirement. These are the rather limited current capabilities of the service personnel data centers.

2. Task No. 10: Develop A Computer Program for Fitting Military Retirees to Job Vacancies in Vocational Education Programs

A special SDC computer program was written for this project based on a query program called the Experimental Personnel Information Capability, or EPIC, which is used by SDC for its own computerized personnel information and retrieval operations (62, 63, 65, 66). The program has been dubbed "RMP," an acronym for Retired Military Project. SDC document TM-3126 contains the step-by-step instructions for using the RMP program with the SDC time-sharing system which operates on the IBM AN/FSQ-32 computer (67).* The guide makes it possible for a non-programmer to use the RMP program and search the data base for specific items of information and combinations of types of information, i.e., age, sex, service branch, rank, etc., or years of occupational experience and educational level.

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* This document can be requested from the System Development Corporation. Additional details on the program specifications will be provided by System Development Corporation upon request.

Man-Job Matches

In order to demonstrate that it is feasible to match retired military personnel to job vacancies in vocational education by computer, three steps were followed. These steps are described and illustrated below.

Step 1: State Certification Requirements. It was first necessary to prepare the certification requirements of the states which were acquired by questionnaires so that they could be used for searching the data base conveniently. This was accomplished by grouping those states which had similar educational level and occupational experience requirements. Table 5 shows the result of this grouping. This procedure reduced the amount of computer time needed for successive computer runs through the data base of retirees.

Step 2: Matching the Retiree to the Job. Three criteria were selected to match a man to a job: (1) the retiree must satisfy the state's educational requirements, (2) he must have the appropriate occupational skill and years of experience for the job, and (3) he must be willing to work in that state. The match could have been made by either one of two possible methods for searching the data base. One method is to create three data subsets by using the criteria just identified. An alternative method is to search the total data base using all three criteria on one computer run. The latter method was used since it requires less computer time to search a small data base of 323 retirees with three criteria (search commands) once than would be required to make three separate computer runs with three data subsets. (The former procedure would be preferred on a larger data base of, say, 10,000 retirees.)

The computer generated printouts shown in Appendix F are the six retiree profiles selected by the program in response to search commands requesting experienced instructors for the occupational field of Aircraft Mechanics in the State of Arizona (which has job vacancies for instructors in this field). The first page of Appendix F provides a code to interpret the profile data. The data at the top of the first printout show that there were 14 users of the time-sharing system at the time of the search, the time the search began, 07:34, and the search commands selected for the run. The run was completed at 07:54. Hence, while 14 other people were using the time-sharing system, it took twenty minutes for the computer to run through the data base of 323 retirees and print out the complete profiles of six retirees who met the criteria indicated in the search commands (high school graduate, 48 months of occupational experience, primary skill in Aircraft Mechanics, rated military instructor, and interested in retiring in Arizona or any state).

Step 3: Simulation. To demonstrate the capabilities of the program, job vacancies for each occupational field in each state were assumed to exist. The RMP program then searched the entire data base of 323 retirees for man-job matches. This search included all retirees meeting minimum occupational requirements. The results of this search are shown in Table 7. The results of the matches are totaled for states in the extreme right column. It should be noted that one individual may be matched for the same skill in many states.

With the RMP program and a data base of the type used in the operations described above it would be possible to conduct a variety of simulated searches and matches. It would be possible, for example, to lower the criterion of occupational experience of all states to three years to determine how many additional retiree-job matches this would provide. Or one could raise this criterion to a minimum of six years to determine the effect of this change. Simulation runs could also be made by raising and lowering the educational requirement for matches. Through such simulations and others as required, it would be possible for a system operator to advise vocational education officials of the impact of proposed changes to certification requirements on the numbers of potential man-job matches.

3. Task No. 11: Data Treatment and Analysis by Computer

Many searches of the data base by computer were made and a significant amount of data was collected and analyzed using the capabilities of the RMP program. In the following presentation, the results of these various searches have been grouped by the type of information obtained. It should be borne in mind that two things are being demonstrated in the following tables and figures: (1) the results of this project's data collection activities, and (2) the capability of the computer and a computer program to contribute to data analysis of a given data base.

Counts of Records

One capability of RMP is to make straightforward counts of records in the data base such as the example given above of 323 retiree records. Several other such counts have been made as follows:

Table 7

NUMBERS OF RETIREES MATCHED TO SIMULATED JOB VACANCIES

	1 AIRCRAFT MECHANICS	2 AUTO BODY AND FENDER REPAIR	3 AUTO MECHANICS	4 BUSINESS (ADP) MACHINE REPAIR	5 CARPENTRY	6 DENTAL TECHNICIAN	7 DIESEL MECHANICS	8 DRAFTING, MECHANICAL	9 DRY CLEANING	10 ELECTRICAL APPLIANCE REPAIR	11 ELECTRICITY/ELECTRICAL TECHNOLOGY	12 ELECTRONIC DATA PROCESSING (OPERATIONS)	13 ELECTRONICS	14 FOOD TRADES	15 INSTRUMENT REPAIR	16 MACHINE SHOP	17 MEDICAL TECHNOLOGY	18 NURSING AND HOS	19 OPTICAL ME	20 PHO
ALABAMA	20		5	1	1		2			2	4	1	15	2		1	3	1		1
ALASKA	19		5	1	1		4			2	6		13	2	1	1	5	1		1
ARIZONA	24		5	2	1	1	4			3	9	1	16	2	1	2	3	2		2
ARKANSAS	21		4	1	1		3			2	5	1	14	2		2	4	2		1
CALIFORNIA	36		7	5	3	1	3			3	12	2	22	3	1	3	5	1		4
COLORADO	20		5	2	1		4			3	6	2	15	2		1	4	1		2
CONNECTICUT	19		4	1	1					1	4		13	2			3	1		1
DELAWARE	20		4	1	1		2			2	5		12	2		1	3	1		1
FLORIDA	27		5	1	1	1	2	1		2	6		20	4		2	3	1		2
GEORGIA	20		5	1	1		2			2	5	2	15	2		1	4	1		1
HAWAII	20		4	2	2		1			2	4	1	13	2		1	4	1		2
IDAHO	18		4	1	1		1			2	4		13	2			3	1		1
ILLINOIS	20		4	1	1		3			2	5	1	13	3		1	3	1		1
INDIANA	19		6	1	1		3			2	5	1	12	2	1	1	5	1		1
IOWA	18		4	1	1		2			2	5	1	12	2		1	4	1		1
KANSAS	19		4	1	1		2			2	5	2	12	2		1	4	1		1
LOUISIANA	20		4	1	1		1			3	7		12	3		1	3	1		2
MAINE	21		4	1	1		1			2	5		14	3		1	3	2		1
MARYLAND	20		4	1	1		2			2	5	1	16	2		1	3	2		1
MASSACHUSETTS	18		4	1	1					1	4		13	3			4	1		1
MINNESOTA	20		6	1	1		4			2	5	1	12	2		1	4	1		1
MISSISSIPPI	1		1	1							1	2	3				1			
MISSOURI	23		5	1	1		4			2	6	1	14	4	1	1	5	2		1
MONTANA	19		4	1	1		2			2	5		13	2		2	3	1		1
NEBRASKA	18		4	1	1		2			2	5	2	12	2		1	4	1		1
NEVADA	21		5	2	1		4			2	10	1	14	2	1	2	5	1		1
NEW HAMPSHIRE	20		4	1	1		1			2	5		15	3		1	3	1		1
NEW MEXICO	3		2	1	1	1					3	2	9				2			
NEW YORK	21		5	1	1		3			2	5	2	14	4	1	2	4	1		1
NORTH DAKOTA	18		4	1	1		1			2	4		12	2		1	3	1		1
OHIO	23		4	1	1		1			2	4		13	2	1	1	3	2		1
OKLAHOMA	21		5	1	1		2			2	5	3	13	2		1	4	2		1
OREGON	24		5	2	2		5			2	9	2	15	3	2	2	6	1	2	2
PENNSYLVANIA	21		4	1	1		3			2	5	2	13	3	1	1	5	1		1
RHODE ISLAND	19		4	1	1	1	1			2	4		13	2		1	3	1		1
SOUTH DAKOTA	18		4	1	1		2			2	5	1	12	2		1	4	1		1
TENNESSEE	22		4	1	1		1			2	5		13	3	1	1	3	1		2
TEXAS	29		7	1	1		3			2	6	1	16	4		2	5	1		3
UTAH	19		4	1	1		1			2	5		12	3		1	4	1		2
VERMONT	20		4	1	1		1			2	5		13	4		1	3	1		1
VIRGINIA	21		5	1	1	1	2			1	6	3	16	3		1	4	2		1
WASHINGTON	25		5	1	1	1	5			2	11	2	13	4	2	2	7	1		1
WEST VIRGINIA	19		4	1	1		2			2	5		12	2		1	3	1		1
WISCONSIN	19		5	1	1					2	5		12	2		1	3	1		1
WYOMING																				

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IES

N

CHANICS

FTING, MECHANICAL

9 DRY CLEANING	10 ELECTRICAL APPLIANCE REPAIR	11 ELECTRICITY/ELECTRICAL TECHNOLOGY	12 ELECTRONIC DATA PROCESSING (OPERATIONS)	13 ELECTRONICS	14 FOOD TRADES	15 INSTRUMENT REPAIR	16 MACHINE SHOP	17 MEDICAL TECHNOLOGY	18 NURSING AND HOSPITAL CARE	19 OPTICAL MECHANICS	20 PHOTOGRAPHY	21 PLUMBING AND PIPEFITTING	22 POLICE SCIENCE	23 PRINTING AND DUPLICATING	24 RADIO AND T.V. REPAIR	25 REFRIGERATION AND AIR CONDITIONING	26 SHEET METAL WORK	27 WELDING	28 ADMINISTRATION	29 COUNSELING	TOTAL MATCHES BY STATES
	2	4	1	15	2		1	3	1		1	1	2				1	2	8	1	74
	2	6		13	2	1	1	5	1		1	2	2	1		3	1	4	8	3	86
	3	9	1	16	2	1	2	3	2		2	1	3		2	1	1	3	12	2	103
	2	5	1	14	2		2	4	2		1	1	2		1	1	1	4	8	3	84
	3	12	2	22	3	1	3	5	1		4	1	5		1		2	4	17	2	143
	3	6	2	15	2		1	4	1		2	1	2		2	1	1	3	9	2	89
	1	4		13	2			3	1		1		1				1	2	8	1	63
	2	5		12	2		1	3	1		1	1	2			1	1	3	8	2	73
	2	6		20	4		2	3	1		2	1	4			1	1	4	12	1	102
	2	5	2	15	2		1	4	1		1	1	2			1	1	3	10	3	83
	2	4	1	13	2		1	4	1		2	1	2				1	2	8	1	74
	2	4		13	2			3	1		1		2				1	2	8	1	65
	2	5	1	13	3		1	3	1		1	1	2			1	1	3	8	2	77
	2	5	1	12	2	1	1	5	1		1	1	2			1	1	3	8	3	80
	2	5	1	12	2		1	4	1		1	1	2			1	1	3	8	3	74
	2	5	2	12	2		1	4	1		1	1	2		1	1	1	3	8	3	77
	3	7		12	3		1	3	1		2	1	3				1	4	8	1	77
	2	5		14	3		1	3	2		1	1	2		1	1	1	3	8	1	77
	2	5	1	16	2		1	3	2		1	1	2			1	1	3	8	2	79
	1	4		13	3			4	1		1		1				1	2	8	1	64
	2	5	1	12	2		1	4	1		1	1	3			1	1	3	8	3	81
		1	2	3				1											6		15
	2	6	1	14	4	1	1	5	2		1	2	3	1		2	1	4	8	3	95
	2	5		13	2		2	3	1		1	1	2			1	1	3	8	2	74
	2	5	2	12	2		1	4	1		1	1	2			1	1	3	8	3	75
	2	10	1	14	2	1	2	5	1		1	2	3	1	1	2	1	5	10	3	100
	2	5		15	3		1	3	1		1	1	2			1	1	3	8	1	75
		3	2	9				2							1				7		32
	2	5	2	14	4	1	2	4	1		1	1	2			1	1	3	9	3	87
	2	4		12	2		1	3	1		1	1	2				1	2	8	1	66
	2	4		13	2	1	1	3	2		1	1	2				1	2	8	1	74
	2	5	3	13	2		1	4	2		1	1	2		1	1	1	3	8	3	83
	2	9	2	15	3	2	2	6	1	2	2	2	2	1	1	3	2	5	12	4	114
	2	5	2	13	3	1	1	5	1		1	1	2		1	1	1	3	9	3	85
	2	4		13	2		1	3	1		1	1	2				1	2	8	1	69
	2	5	1	12	2		1	4	1		1	1	3			1	1	3	8	3	75
	2	5		13	3	1	1	3	1		2	1	2				1	3	9	1	77
	2	6	1	16	4		2	5	1		3	1	3			1	1	4	8	2	101
	2	5		12	3		1	4	1		2	1	2		1		1	3	8	1	73
	2	5		13	4		1	3	1		1	1	2				1	3	8	1	73
	1	6	3	16	3		1	4	2		1	1	2			1	1	4	9	4	90
	2	11	2	18	4	2	2	7	1		1	2	2	1		3	1	4	13	3	117
	2	5		12	2		1	3	1		1	1	2				1	3	8	1	70
	2	5		12	2		1	3	1		1	1	3				1	3	8	1	70
																			3		3

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- Count of Total Retirees by Service Branch:

Air Force:	85
Army:	61
Navy:	177
	323

- Count of Retirees Interested in a Second Career in Vocational Education:

Undecided:	70
Yes:	217*
No:	36
	323

- Count of Retirees by Sex:

Male:	320
Female:	3
	323

Instructors

Several searches were made to determine the total number of rated** and non-rated instructors in the data base by service branch and rank:

- Count of Instructors in Total Data Base:

Rated Instructor:	95
Non-Rated Instructor:	100
Not an Instructor:	128
	323

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* This figure is 14 percent of the total number of questionnaires mailed and delivered (1528). On a basis of 50,000 military retirees annually, this suggests that 7,000 retirees might be interested in second careers in vocational education.

** The term "rated instructor" means that an individual has completed the service's required instructor courses. The relatively large proportion of rated instructors in the data base reflects the fact that the service personnel data centers were specifically asked to provide the names and addresses of retiring instructors as identified by their specialty code numbers.

- Count of Rated Instructors by Service Branch:

Air Force:	8
Army:	11
Navy:	76
	95

Mean number of months spent as an instructor: 62

- Count of Rated Instructors by Rank:

Rank	Number
E4-E9	72
W1-W4	2
01-09	21
	95

- Count of Non-Rated Instructors by Service Branch:

Air Force:	28
Army:	27
Navy:	45
	100

Mean number of months spent as an instructor: 37

- Count of Non-Rated Instructors by Rank:

Rank	Number
E-E9	81
W1-W4	7
01-09	12
	100

Mean Ages by Service Branch and Rank

Another capability of RMP is to compute the mean of any set of numbers as in the following examples:

- Mean Age of Retirees by Service Branch:

Service	Mean Age
Air Force	42
Army	42
Navy	41

2

- Mean Age of Retirees by Service Branch and Rank:

Air Force		Army		Navy	
Rank	Mean Age	Rank	Mean Age	Rank	Mean Age
E1-E9	42	E1-E9	40	E1-E-9	40
W1-W-4	42	W1-W-4	41	W1-W-4	46
01-09	39	01-09	51	01-09	44

Education Level, Rank, and Salary

The educational level attained by the military retirees was divided into four categories: (1) Grades 1-11; (2) High School Diploma; (3) College - No Degree; and (4) College Degree or Higher. A count was made of the number of retirees in each of these categories and the salary level requested. The results of this search are shown in Figure 1. As Figure 1 shows, the largest proportion of retirees are high school graduates. Retirees with the college degree or higher also request the highest salaries.

The mean salary requested in association with educational level attained was computed for all levels. The results, shown in Figure 2, indicate that as the education of the retirees increases, the salary requested also increases. The education level scale (1-20) represents the highest school grade completed.

Figure 3 shows the results of determining the mean salary requested by retirees in association with military rank. The Figure reveals the particularly unrealistic salary expectations of two ranks - 0-4 (Major) and 0-5 (Lt. Col.) - for employment in vocational education. The salary expectations of Warrant Officers and senior non-commissioned officers are also high if one assumes a starting salary in vocational education of approximately $5500.

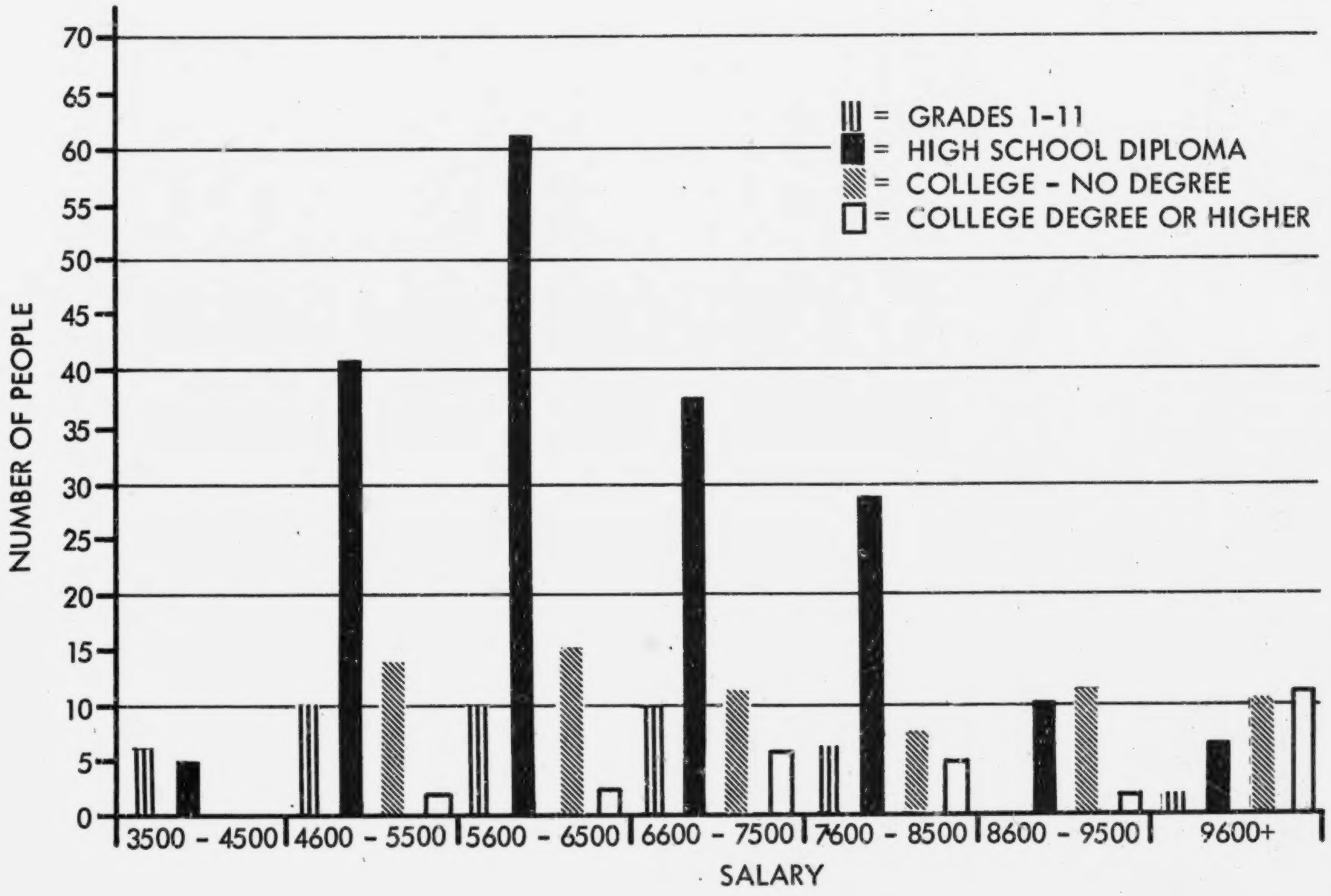

FIGURE 1. NUMBERS OF RETIREES BY EDUCATIONAL LEVEL AND SALARY REQUESTED

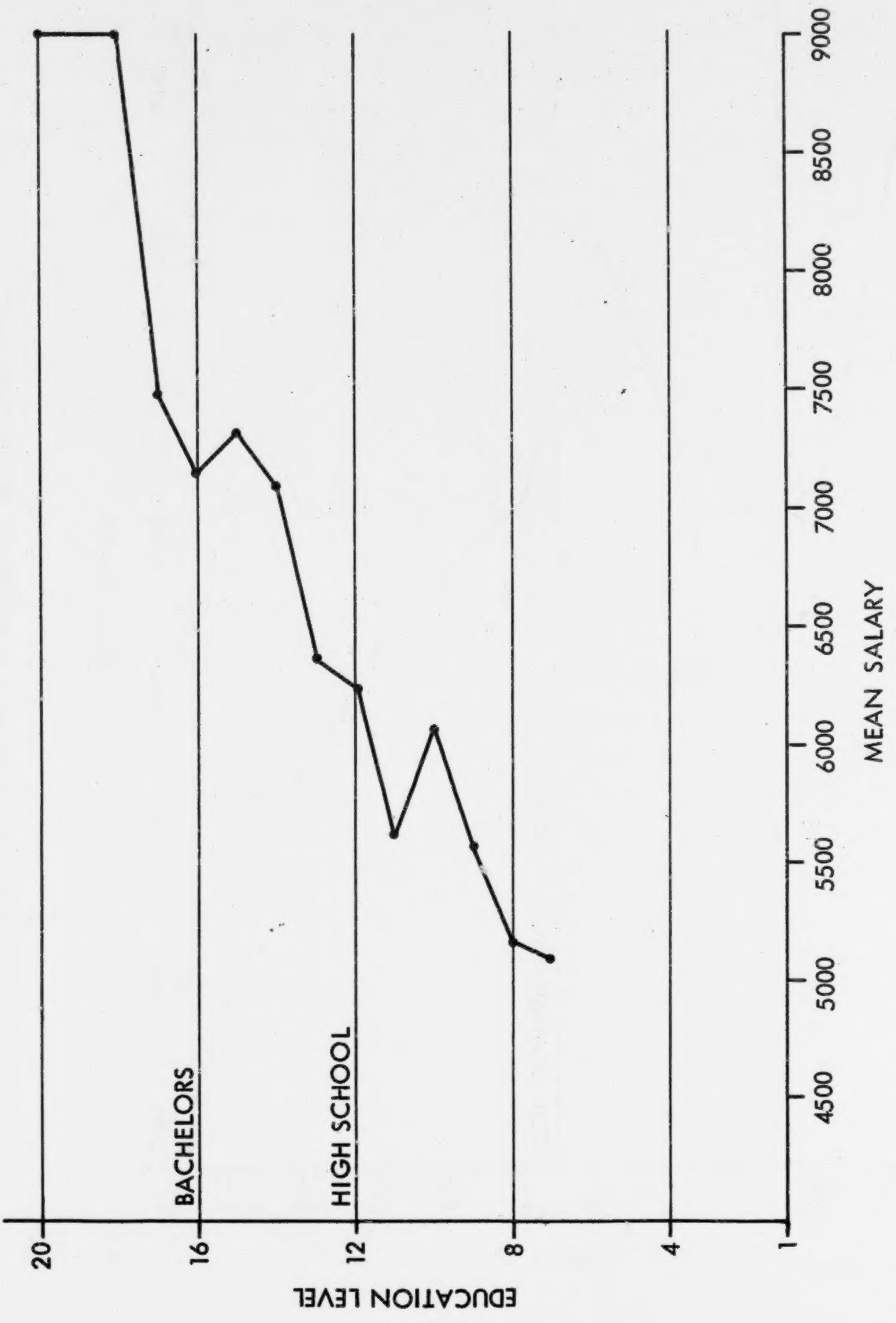

FIGURE 2. MEAN SALARY REQUESTED BY EDUCATIONAL LEVEL

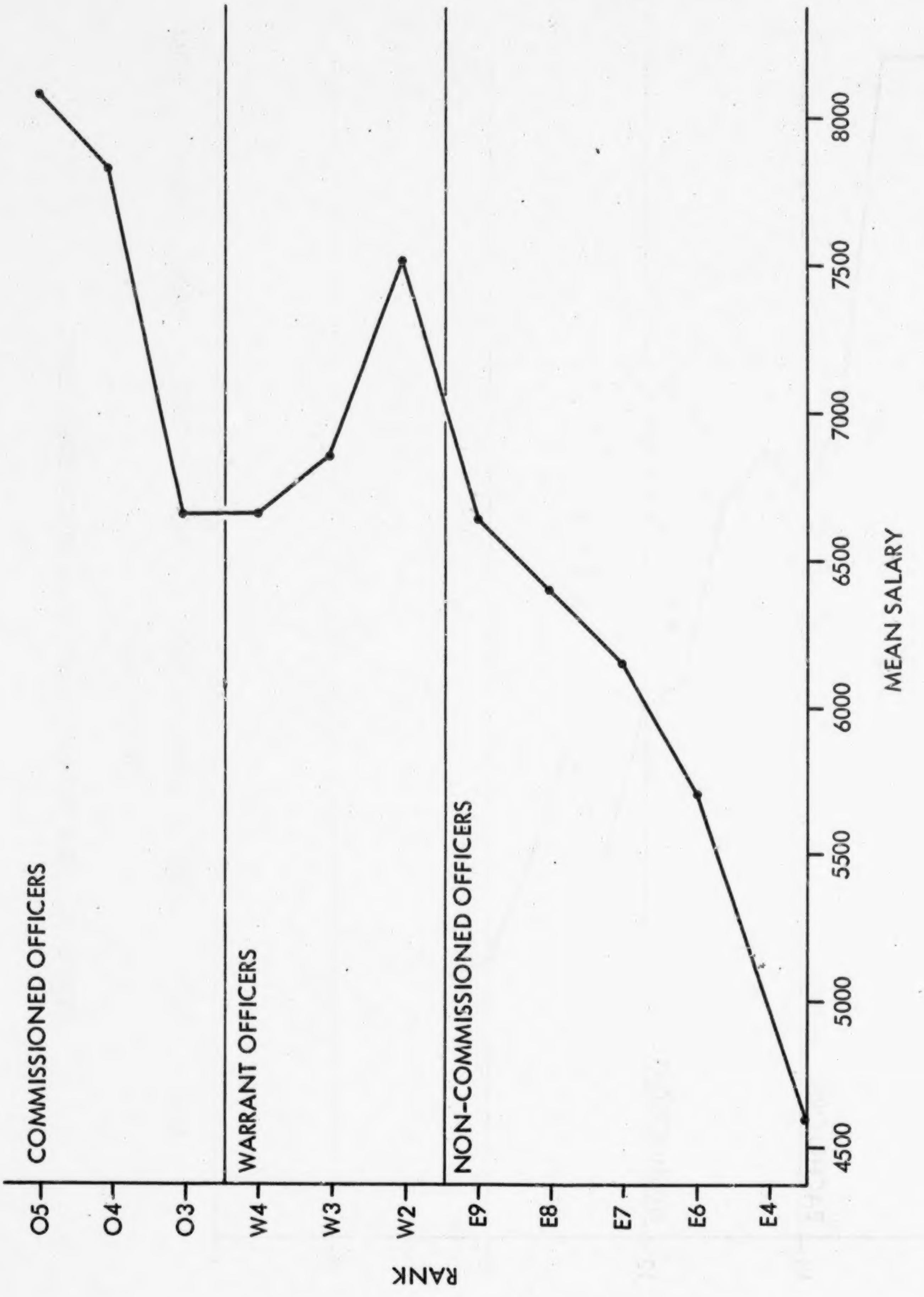

FIGURE 3. MEAN SALARY REQUESTED BY MILITARY RANK

The mean educational level attained by retirees in association with military rank is shown in Figure 4. The Figure shows that the bulk of potential vocational education candidates between the ranks of E-7 (Chief Petty Officer or Master Sergeant) and W-4 (Chief Warrant Officer) have at least a high school diploma or the General Educational Development (GED) equivalent.

Figures 1 through 4 corroborate statements made during interviews by state directors of vocational education or their representatives that officers as a group have unrealistic salary expectations when they apply for jobs in this field. Figure 3, in particular, shows that the highest two ranks in the sample, O-4 and O-5, request salaries which average between $7500 and $8500. The close relationship between educational level and rank shown in Figure 4 in the higher officer levels (but not for enlisted men and warrant officers) suggests that officers might unrealistically attribute too much value to their formal educational attainments insofar as the field of vocational education is concerned.*

Skill Areas by Service Branch, Educational Level, and Salary

Figure 5 shows the comparative numbers of retirees in each skill area and by branch of service. The Figure reveals the concentration of Aircraft Mechanics in the Air Force, and Electrical and Electronics

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* It should be noted, as Sharp and Biderman report in their study of the civilian employment of military retirees, that high educational attainment is critical for the employment of retirees in academic educational institutions. This distinction between academic education and vocational education must not be ignored.

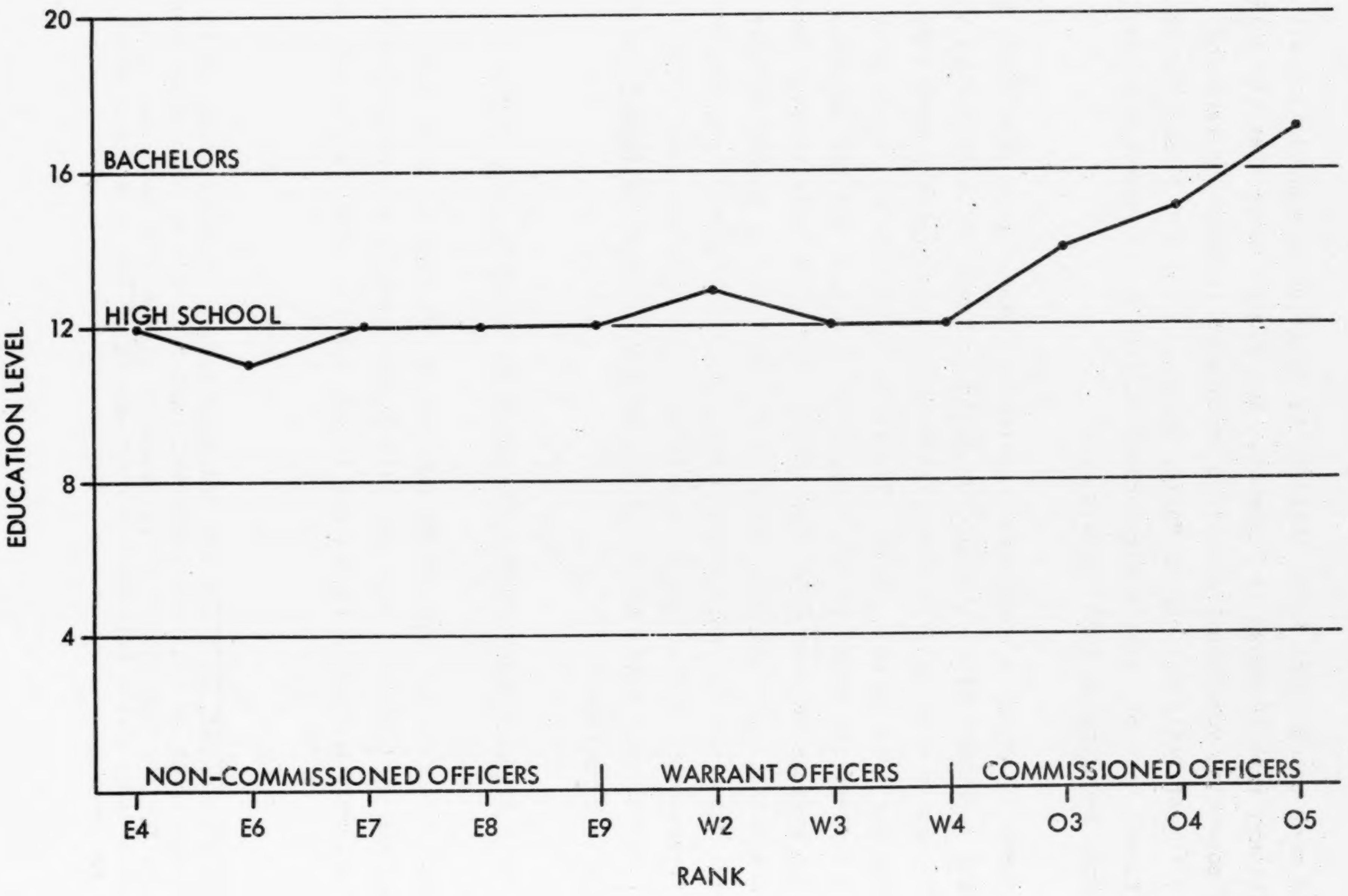


FIGURE 4. MEAN EDUCATIONAL LEVEL BY MILITARY RANK

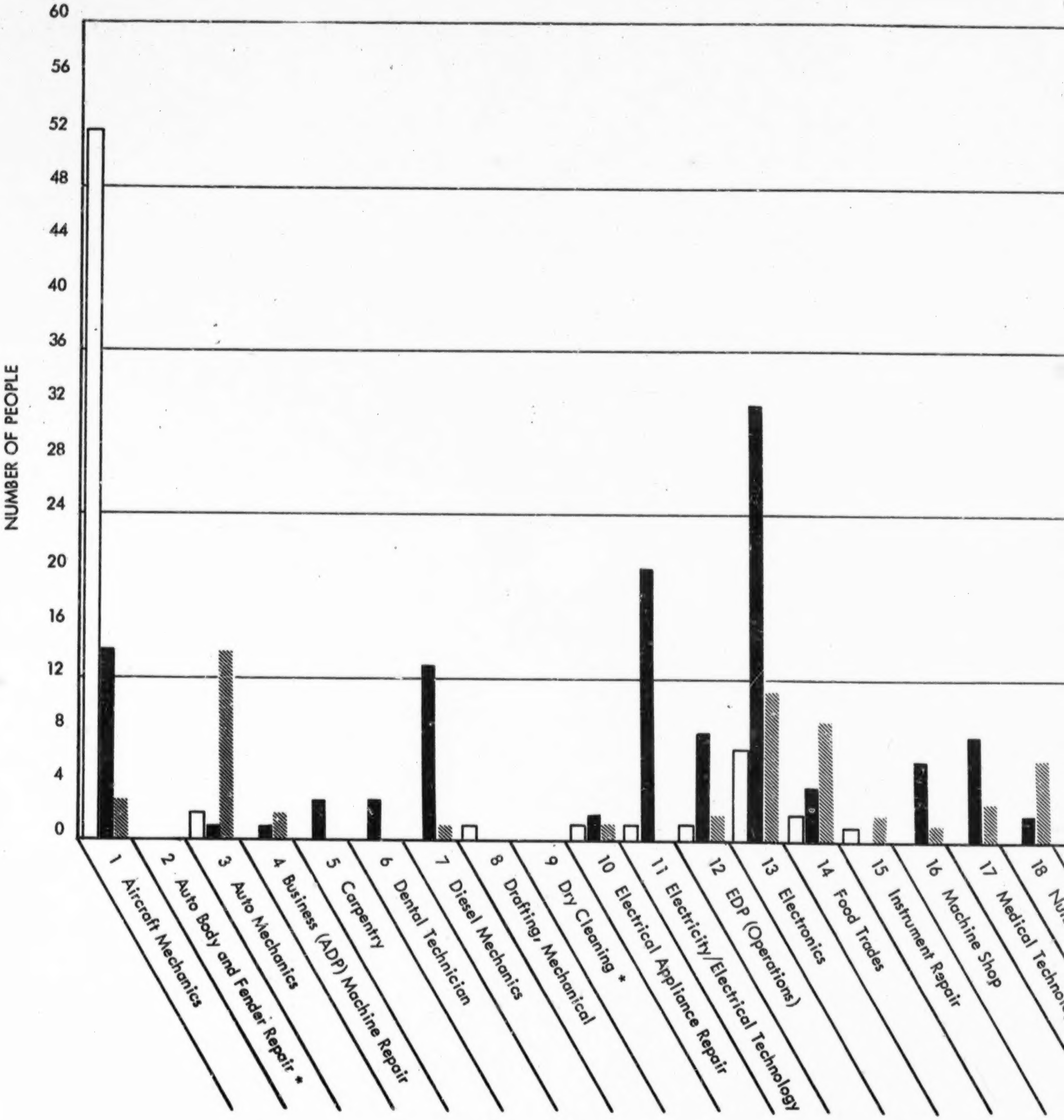
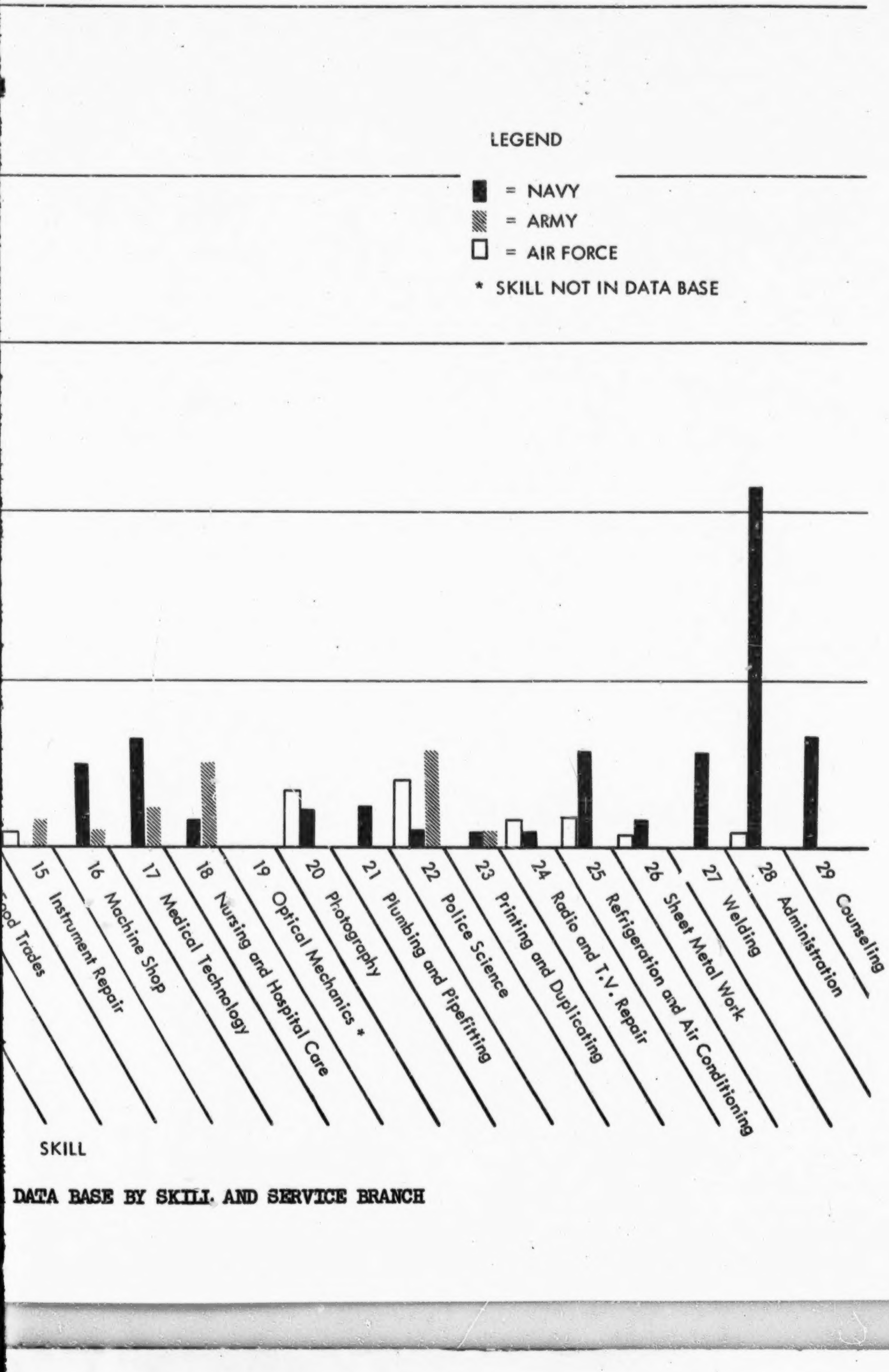


FIGURE 5. NUMBER OF RETIREES IN THE DATA BASE BY SKILL A

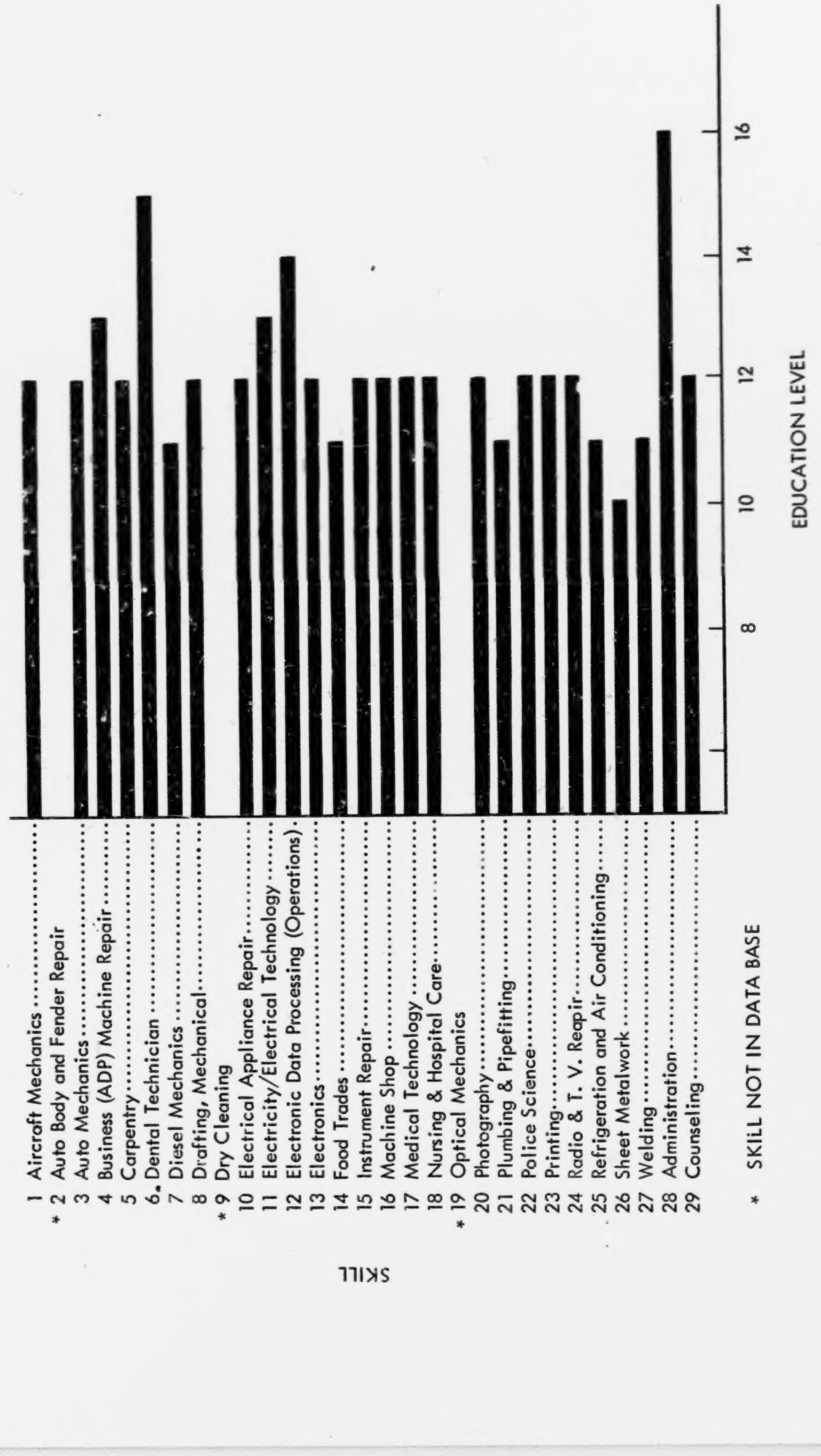


DATA BASE BY SKILL AND SERVICE BRANCH

Technicians and Administrators in the Navy. The Army provides the bulk of personnel in Auto Mechanics. Skills not represented in the data base are Auto Body and Fender Repair, Dry Cleaning, and Optical Mechanics. These data are no more than suggestive in light of the small number of retirees in the data base. The extent to which selected occupational skills are distributed in the three major services cannot be determined from our limited sample, nor is this determination a project objective.

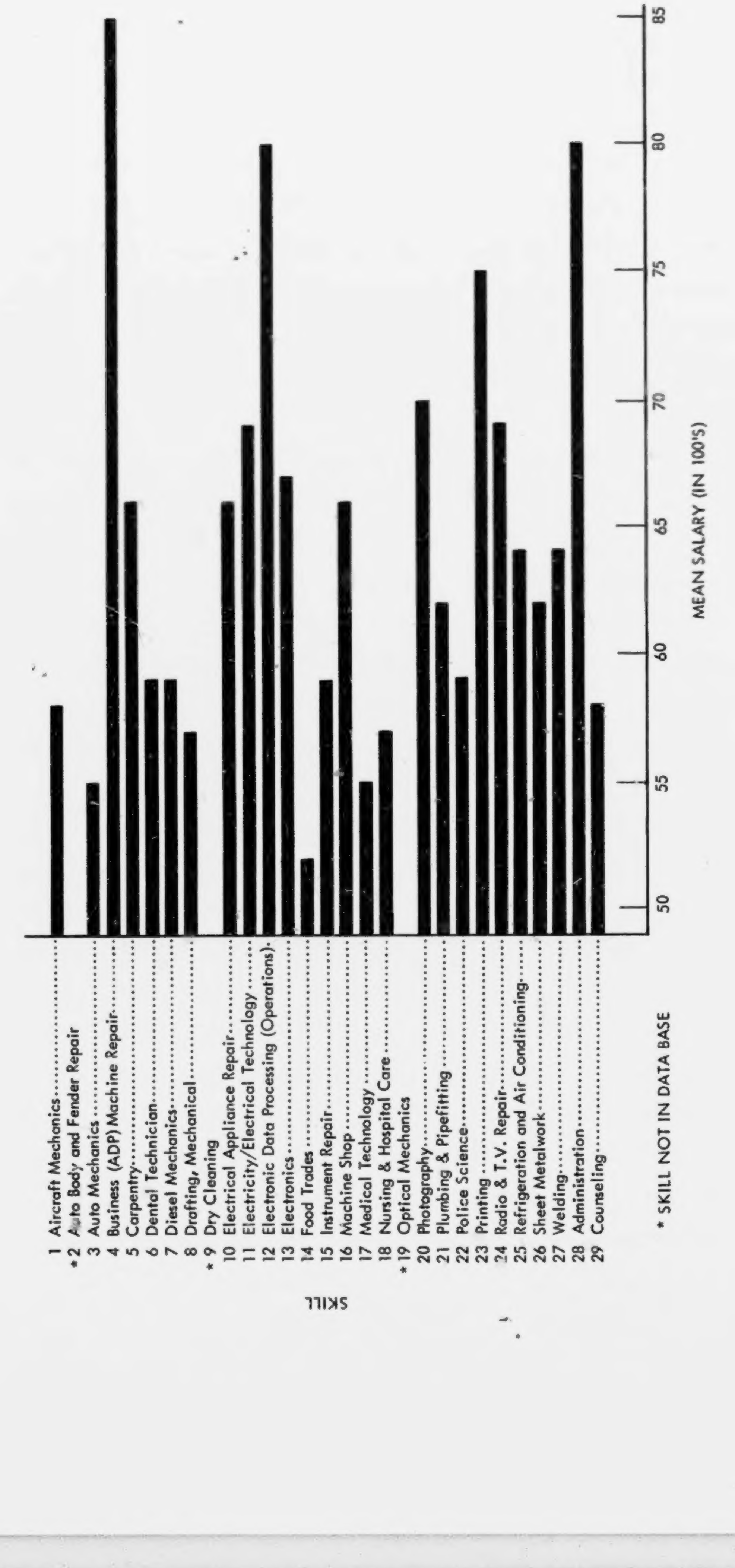
A computer run was made to determine the mean educational level attained by retirees by skill area. Figure 6 presents these results. The highest educational levels were found in such fields as Dental Technician, Electronics, and Administration. It should be pointed out that this last skill area is composed almost entirely of Naval officers whose backgrounds indicated administrative experience and who could not be categorized by their NOBC record with any other skill category.

Figure 7 shows the mean salary requested by the retirees who were selected by skill area. The uneven distribution suggests that salary expectations are closely related to the retirees' skill area as well as to their educational level. Salary requests are high for retirees skilled in Business Machine Repair, EDP Operations, Printing and Duplicating, and Administration, and relatively low for Auto Mechanics, Mechanical Draftsman, Food Trades, Police Science, Counseling, and Medical Technology.



* SKILL NOT IN DATA BASE

FIGURE 6. MEAN EDUCATIONAL LEVEL BY SKILL



* SKILL NOT IN DATA BASE

FIGURE 7. MEAN SALARY REQUESTED BY SKILL

E. Recommend, if Needed and Feasible, A Military Retiree-Job Matching System--Its Possible Sponsor(s), Operator(s), and Funder(s)

In previous sections of this report the need for a military retiree-job matching system was treated from the point of view of military retirees and state vocational education officials. The technical feasibility of such a system was examined from the perspective of computer program designers. In this section, the issues of need and feasibility are treated in a broader social context. Before recommendations could be made for such a system, it was essential to determine what was being done in the area of computerized man-job matching systems, particularly in the field of education. There would clearly be no point in recommending a military retiree-job matching system if some public institution was already operating one which would meet the need, or if some educational association was already designing a system which would locate prospective job candidates for teaching vacancies in vocational education. At the same time, this aspect of the project was devoted to ascertaining which institutions, organizations, or agencies might appropriately sponsor, fund, and operate a proposed military retiree-job matching system.

It is necessary to define the key terms which will be used in the following discussion. The term "sponsor" refers to that agency or organization under whose endorsement and support the system would operate. Examples of possible sponsors are the U.S. Office of Education, the U.S. Employment Service, the American Vocational Association (AVA), etc. The term "funder" refers to that agency or organization which would provide the financial support for the system. The funder might or might not be identical with the sponsor. Conceivably funds could come from the Department of Defense or USOE, or both, but the AVA could be the sponsor. The term "operator" refers to that agency or organization which would conduct the daily activities of the retiree-job matching system. The operator could be identical with or different from both the sponsor and the funder, i.e., AVA could be the sponsor, USOE could be the funder, and the Center for Vocational and Technical Education at Ohio University could be the operator. Conceivably also, the operator might be composed of more than one organization, i.e., U.S. Employment Service and a nonprofit corporation. The term "user" refers to agencies or organizations which would receive outputs from the system such as state directors of vocational education, the USOE, and the AVA.

To obtain first hand information on what was being done in the field, and to clarify issues such as how a placement system would fit within the educational community and the problems of sponsorship, operation, and funding, interviews were conducted with the following people and organizations: Dr. Melvin L. Barlow, representing the American Vocational Association, Washington, D.C.; Dr. George E. Arnstein of the National Education Association, Washington, D.C.; Mr. A. J. Karzin and others of the U.S. Employment Service, Washington, D.C.; and Dr. Robert E. Taylor and Dr. James W. Hensel of the Center for Vocational and Technical Education, Ohio State University, Columbus, Ohio.

The interviews conducted, as well as a review of the available literature, indicate that there is considerable ferment in the area of computerized system development for man-job matching systems both in and outside the field of education. At the national level, the Report of the National Commission on Technology, Automation, and Economic Progress recommends "that a computerized nationwide service for matching men to jobs be established." (36, p. 50) The Commission report, it should be noted, leaves unresolved the question of who will sponsor, fund, and operate the system. It states that the system could be organized as a "nonprofit public service corporation, or it could be part of the U.S. Employment Service." While some of the Commission members preferred the first possibility, they state that "the appropriate form of organization is subsidiary to the basic recommendation that the system be established." That is where the issue was left.

In a special message on International Education to Congress on February 2, 1966, President Johnson proposed the establishment of an "American Education Placement Service" in the Department of Health, Education, and Welfare.* The purpose of this new service would be to "act as an international recruitment bureau for American teachers...." The intent of the President with respect to this service is clear enough in the context of his total message. The objective of such a placement service is to channel teachers into teaching positions in other nations, i.e., in the United States there are "school and college teachers eager to serve abroad...." While such a system may well serve the needs of international education, it is quite apparent that it would not be useful to vocational education in the United States, and it might serve to drain away the very vocational teacher talent the state directors of vocational education are searching for.

Job placement is a primary responsibility of the U.S. Employment Service. Of special interest to this project was this agency's Project LINCS (Labor Inventory Communications System), an experimental application of automatic data processing to placement operations in the State of California (20). The system is an attempt to overcome recognized limitations in the existing USES system of manual data processing. The objective of the computerized system is to provide "necessary capabilities for optimum inter- and intra-area exposure of workers to job opportunities."(20, p. 57)

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* International Education Program, 1966, an information service of Education and World Affairs, 522 Fifth Ave., New York, New York.

The system is currently assisting professional placement operations in the Sacramento, San Francisco, and Los Angeles Professional Placement offices. According to an available description of the system, experience with it during the past two years has demonstrated its feasibility but it does have limitations: "Thus far, the program has been restricted to a small number of offices within the state. It has yet to be tested on a wide geographic basis involving occupations on various skill levels." (20, p. 58) It is not known at the present time what the future of this USES effort will be. Project LINCS is being investigated by the Auerbach Corporation to determine whether or not it can and should be expanded into a nationwide service for all types of placement.

The interview with the USES representatives referred to earlier revealed that this organization is also considering the development of a computerized job placement system for all military retirees which would not be limited to jobs in education. This possibility is also under study by the Auerbach Corporation as part of its overall study of USES organization and operations.

The critical problem for a job placement system in vocational education which finds job specifically for military retirees is not the relationship of this system to the USES plans for LINCS, but its relationship to the possible development of a computerized job placement system for military retirees which would presumably encompass all types of job vacancies. Ideally, there should be a single system for matching military retirees to jobs whether these jobs are in education or not. But it is not known at the present time what the Auerbach Corporation will recommend in this area. Also, if such a system were to be built, the work associated with creating that part of it which would match retirees to jobs in vocational education would necessarily duplicate the work done by SDC on this project.

Furthermore, a general system for military retiree job placement would necessarily tend to downgrade the specific needs of vocational education.

The position of the American Vocational Association on the subject of a proposed military retiree-job placement system for vocational education can be briefly summarized. The Association currently publishes a non-computerized "job openings roster" which can be obtained for a fee of five dollars. The Association is seriously concerned about the teacher shortage in the field and is very much interested in any efforts to develop a more effective placement system for vocational education. Unfortunately at present, the Association has neither the funds nor the personnel to develop and operate a computerized system.

The Center for Vocational and Technical Education at Ohio State University is a new organization which is still in the process of defining its organization and functions. It has been established by the American Vocational Association with long-range funding from the U.S. Office of Education. Work is being conducted in three major areas: (1) research on vocational education, (2) information retrieval, and (3) leadership development. Through these various activities, the Center has working relationships with the state directors of vocational education and vocational educators throughout the nation. Its staff includes vocational educators and the organization has access to the computers at the University.

The Center has the potential to be the system operator. It has the support of the AVA, which is a critical factor. It has the financial support of the U.S. Office of Education. Also, as we have noted, it has communication links with the entire vocational education community. Its staff includes professional vocational educators and it has access to the University's computers. Unfortunately, the Center has no experience with computer programming, system design, system development, or the operation of a computerized system. There are no programmers currently on its staff. To operate the retiree man-job matching system, the Center would require reorganization. While the Center has the potential to become the system operator, it must be concluded that the choice of the Center for this role at the present time would result in extensive delays in the development and implementation of an operational system.

In the course of this investigation one operational, computerized placement system in the field of education was studied at some length. The system is called GRAD (Graduate Resume Accumulation and Distribution) and it is operated by the College Placement Council (14). This system links nationwide college placement offices with employers in varied fields--business, industry, government, and education. It is a nonprofit program designed to assist the recruitment of college graduates. The system is conceived not as an employment agency, but as "an instrument to be utilized by the (college) placement director." The following brief description of the GRAD system is quoted from the reference cited above.

1. The alumnus makes known to the placement director or College Placement Council his interest in obtaining employment.
2. The placement director conducts such counseling as may be required, then provides the alumnus with a GRAD resume form.
3. The alumnus sends in the completed resume.
4. The GRAD Data Center extracts a major job title and 21 selectors from the resume and stores them in an electronic file for immediate retrieval.
5. The employer searches the electronic file and orders copies of the resume which meet his specification.
6. If the alumnus is employed through use of the system, the placement director is informed of the employment. If no employment results in the first six months, the applicant is removed from the file and the placement director informed

> of the number of times his resume has been referred to employers. The director has the option of granting an additional six months to the applicant.

The limitation of GRAD from the point of view of the objectives of this project is that it is designed to meet the specific needs of placement counselors and graduates at the college level. It is not, therefore, a likely vehicle for adaptation to the needs of military retirees, most of whom are not college graduates. However, there is no reason why vocational educators looking for employees with college degrees could not use the services of GRAD. They would have to search elsewhere for non-college degree candidates.

Of special interest for the purposes of this project was the work of Dr. George E. Arnstein for the National Education Association, the professional association for elementary and high school educators. Concurrently with the investigation which is being described in these pages, Dr. Arnstein was engaged in the design of a computerized placement system for teachers at the college level under the sponsorship of the Association for Higher Education of the NEA (1). Dr. Arnstein conceived his system, named MATCH, as "a confidential nonevaluative, computer-based matching service." (1, p. 1) His hope with MATCH was to establish for the first time a national placement system which would be truly responsive to the needs of the educational community. It should be stressed that MATCH was not intended to meet the needs of the entire educational community, but only the needs of higher education. However, although the design of MATCH was completed and is described in the document referenced above, it has never been implemented. Apparently, funding was the basic problem. Following the demise of MATCH, Dr. Arnstein was given a new task by the NEA--to conduct a "feasibility study to determine the cost and dimensions of setting up a nationwide computer-based register of teachers seeking employment or re-employment."* This system, dubbed the National Teachers Register, would serve the job placement needs of elementary and secondary school teachers and counselors. Dr. Arnstein states that "the Register may become operational at some future date...."* As this report goes to press, the NEA has provided additional funds to convert the feasibility study into an operational plan. The name of the National Teacher Register has been changed to ACCESS (A Central Computerized Education Staffing Service) and the system is expected to be operational in February, 1967. As the name implies, ACCESS will be a computerized information system "which gets together and matches information on candidate's qualifications and preferences against vacancy descriptions and specifications."**

As George Arnstein has noted, and as the GRAD and ACCESS systems illustrate, the market for educators has been fragmented and each fragment has its own sponsor--the American Council on Education (ACE) or the College Placement Council are the sponsors in higher education, while the National Education Association (NEA) sponsors elementary and secondary education. Ideally, as Arnstein suggests, there should be a single mechanism to get employers and would-be employees together. Arnstein expresses his concern about the split between higher education and secondary and elementary education. However, his systems do not concern themselves with vocational education, and in an interview with the investigators of this project, he recognized this as well as the unique features of vocational education.

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* This information was supplied by Dr. Arnstein in correspondence dated October 18, 1966.

** This information was supplied by Dr. Arnstein in correspondence dated December 13, 1966.

Our conclusion, then, is that due to the unique educational and occupational requirements for faculty in vocational education, this area of education should have its own teacher placement system. A realistic concept of three separate systems serving the educational community is depicted in Figure 8. Note that vocational education personnel are found at both higher and secondary education levels.

George Arnstein argues cogently for a "private, nonprofit corporation" which would sponsor and, presumably, operate a center for educational staffing (1, pp. 39-43). Following this logic, a recommendation that a private, nonprofit corporation should be the system operator as we have defined that term for the purposes of this report has much merit. Such a corporation should be expert in the areas of computer programming, computer operations, and information system design and development. It should have the necessary computer and other hardware facilities. It should have professional educators on its staff. Based on the experience of the authors of this report in developing the RMP program, much time would be lost unnecessarily if a new organization was created to be the system operator, or if the task was given to an inexperienced organization such as the Ohio Center.

One of the biggest problems facing the variety of current man-job matching systems both in and outside of education is funding on a permanent basis. Some existing man-job matching systems, such as GRAD, require users and contributors to pay a fee. George Arnstein reports that many such systems are operating at a loss and have had to reduce or eliminate their fees. In job placement for military retirees, the use of a fee to support the system would not be appropriate. Also, the military retiree man-job matching system should have permanent financial backing. Recommendations for funding are discussed in Part III, Section "B" of this report.

PART III. CONCLUSIONS AND RECOMMENDATIONS

A preliminary draft of the final project report was mailed to all members of the National Advisory Council prior to the second Council meeting which was held in Washington, D.C. on 9 November 1966. The results, conclusions, and recommendations in the written report and in the oral presentation by the project investigators generated much lively discussion. It is a fair evaluation of the meeting to state that a consensus was reached by the Council in accepting the project conclusions and recommendations. The Council members were particularly emphatic about the importance of implementing the recommendations as soon as practicable.

A. Conclusions

The conclusions presented here are either directly related to the major project objectives, or they pertain to other areas of interest which emerged in the course of project data collection and analysis.

1. Compatibility of Military Occupational Specialties With Skill Areas in Vocational Education Programs

Whether or not military occupational specialties are "compatible" with skill areas in vocational education is, of course, a matter of definition. By examination of official service documents containing military specialty code numbers, specialty titles, and job descriptions it was possible for the investigators to associate them meaningfully with civilian occupational categories as defined in the Department of Labor's Dictionary of Occupational Titles, and with a selected number of skill areas commonly taught in vocational education programs. Department of Defense and service military-civilian job conversion tables were also used in this project for matching purposes, but these documents were found to be inadequate, both in the range of occupations covered as well as the lack of detailed descriptions of occupations. Existing job descriptions, both military and civilian, are valuable and essential in helping to determine the initial degree of compatibility of military and civilian occupations and skills. For an on-going retiree-job matching system, however, careful screening by a trained occupations analyst of each retiree's skill and educational background would be necessary to assure a second degree of compatibility between a retiree's background and a discrete skill area in vocational education. Only the local school employer, after a review of a job candidate's qualifications, can make the final determination of "compatibility."

2. Feasibility of Using Military Retirees in Vocational Education

The use of military retirees in vocational education programs is not only feasible, as the findings in this project indicate, but their past use in such programs appears to be successful according to state directors of vocational education, by virtue of case histories of individual retirees now in vocational education, and by a report of research conducted in the state of Florida. Questionnaire data obtained from a sample of retirees show that many retirees have relevant skill backgrounds and more than an adequate level of educational attainment. The questionnaire data plus interviews indicate they are interested in vocational education as a second career. The state certification requirements, both for education and occupational experience, pose no insuperable barriers to the employment of retirees.

3. General Need for Teachers in Vocational Education

Questionnaire data obtained from 45 states and interviews with a sample of five state directors of vocational education or their representatives indicate that there is a shortage of qualified instructors in the field. The precise extent of the shortage could not be ascertained due to the apparent lack of such information at the state level. It was also found that the true extent of the shortage could not be determined from official records since courses considered needed are frequently not offered because local administrators know they do not have the necessary teaching staff.

4. Feasibility of Computer-Assisted Matching of Retirees to Job Vacancies in Vocational Education

The feasibility of developing a computerized matching of military retirees to job vacancies in vocational education was demonstrated by the modification and use of an existing SDC query program, the Experimental Personnel Information Capability, or EPIC, which is used by the corporation for its own personnel data retrieval operations. The program, which operates on the SDC time-sharing system utilizing the IBM AN/FSQ-32 computer, was used to search a data base comprised of the personal histories of 323 military retirees and, on the basis of pre-selected criteria, printout the histories of qualified retirees.

5. The Need for a Military Retiree-Job Matching System in Vocational Education

This project has shown that there is without question a great need for a military retiree-job matching system in vocational education. The information obtained by questionnaires and by interviews, both from the retirees and vocational educators, supports this conclusion. There does not exist at present any systematic procedure or method for channeling qualified military retirees into the field of vocational education in spite of the teacher shortage in that field. The military questionnaire data indicate much interest on the part of retirees in the possibility of vocational education teaching as a second career. These same data also show that retirees meet the minimum educational and occupational requirements of the states in most cases. However, the interviews with a small sample of retirees revealed that few of them had ever considered the possibility of a second career in vocational education prior to receiving the SDC questionnaire, and most of them erroneously believed a college degree was a mandatory certification requirement. A basic problem, then, is simply the ignorance of the typical military retiree about the field of vocational education.

This ignorance of the retirees about vocational education as a possible second career is not currently being overcome by the existing DOD/USES cooperative retirement orientation program. None of the retirees had been informed at these orientation lectures that there was a teacher shortage in vocational education. In addition, the DOD publication on teaching, Teaching: A Second Career, which is available to retirees and is written for them, never mentions vocational education.

For their part, the vocational educators report good experiences employing military retirees as teachers and they express great interest in obtaining more retiree candidates. Yet they have no mechanism for systematically recruiting personnel from the ranks of military retirees.

There is currently a needless waste of the skills and experience of retirees who, each year, accept jobs in such fields as sales, insurance, real estate, post office work, etc., fields unrelated to their technical backgrounds. The basic reasons for this waste are (a) the difficulty in converting military skills into civilian occupational categories, and (b) the lack of adequate job placement procedures and methods.

6. Inadequacies of Existing Systems to Meet the Needs of Vocational Education

Computerized man-job matching systems are being contemplated at the national level, but if and when they will be implemented is uncertain. The Report of the National Commission on Technology, Automation, and Economic Progress of February, 1966 recommends "that a computerized nationwide service for matching men to jobs be established," but the report leaves unresolved the question of who will sponsor, fund, and operate the system. President Johnson in his special message to Congress on International Education on February 2, 1966, proposed the establishment of an "American Education Placement Service" in the Department of Health, Education, and Welfare. Information currently available at this writing on these proposals does not indicate that these systems, if created, will meet the special needs of vocational education. The Commission Report is concerned with the entire labor market, and the President's concern was directed specifically to international education.

The future of the experimental computerized job placement system, LINCS, currently in use by the U.S. Employment Service to link professional placement services in three California cities, is uncertain and is being studied by the Auerbach Corporation. The basic problem here is that the USES conducts its operations on a statewide basis, while the problem of matching military retirees to job vacancies in vocational education must be treated on the national level. Even if the LINCS system was made national in scope it is unlikely that the special needs of military retirees and vocational educators could be met for many years. The USES is concerned with the entire labor market and, therefore, it should not favor the needs of any particular segment of the job market. But this is precisely what is needed in vocational education.

A similar problem is inherent in a proposed USES computerized job placement system for military retirees serving the entire job market.

If such a system is built, the special needs of vocational education may not be met again. This system, however, could be adapted to meet those needs if vocational educators were permitted to participate in the system design effort. The future of this system is unknown at this time. It is also under study by the Auerbach Corporation as part of its overall study of USES responsibilities and functions.

In the field of education, the National Education Association has provided the necessary additional funds to convert a feasibility study for a National Teachers Register of elementary and secondary teachers into a development effort for a computerized teacher-job vacancy matching information system, known as ACCESS, which is expected to be operational in February, 1967. This system does not meet the unique needs of either military retirees or vocational educators.

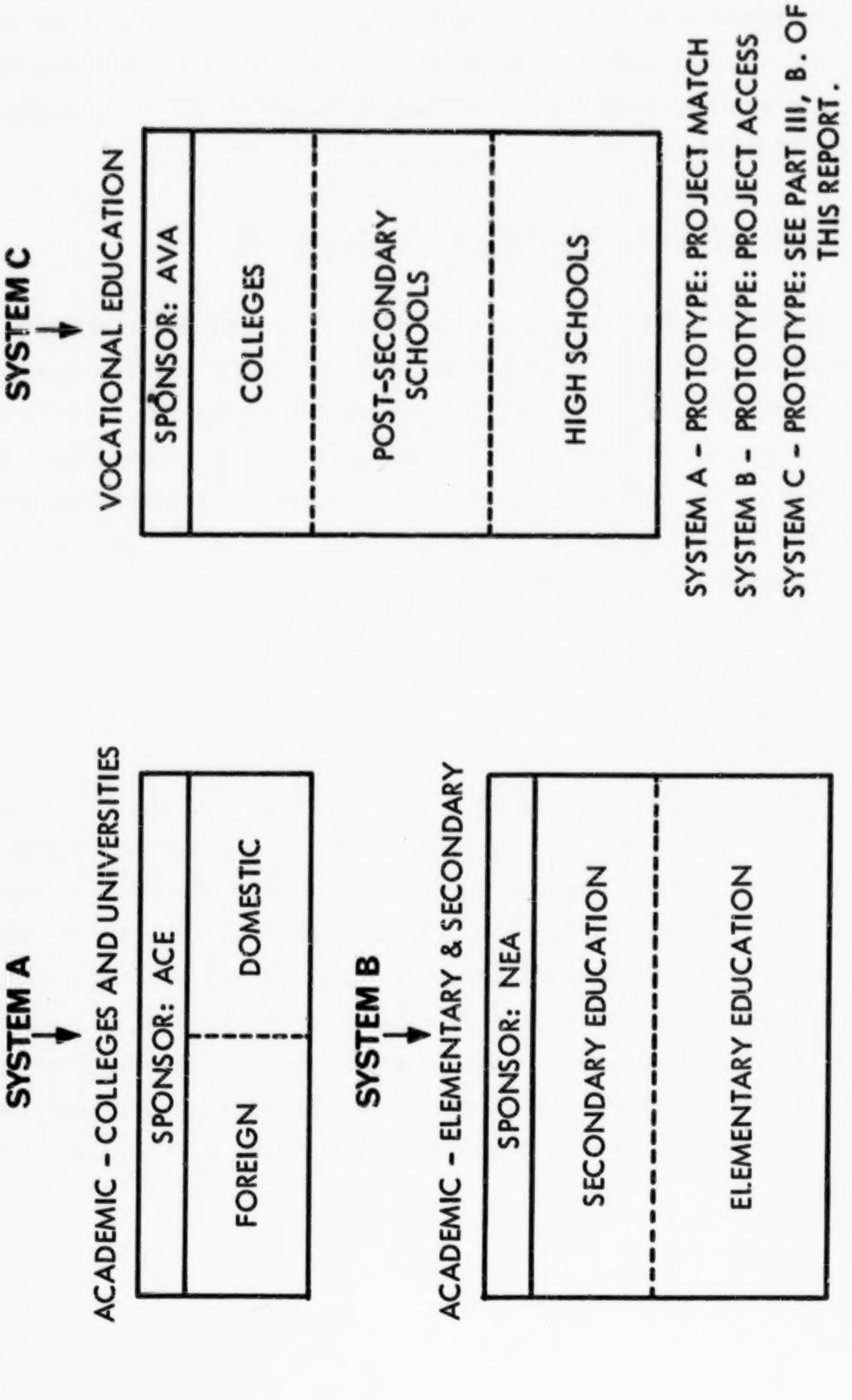
The GRAD system is the only operational computerized system for the placement of personnel in education the writers of this report were able to find. However, this system was specifically designed for the use of college placement counselors in the placement of college graduates. It could not serve the need for matching military retirees to jobs in vocational education as it is currently designed and operated. Vocational educators, if they wish, can use the system to locate prospective job candidates who are college graduates, but not military retirees.

The major conclusion of this study of proposed and existing systems is that neither any of the proposed systems nor any of the existing systems are designed to solve the problem of matching military retirees to job vacancies in vocational education. Systems such as MATCH, ACCESS, GRAD, LINCS, and the proposed USES system to match military retirees to job vacancies in the entire job market, conceivably could be adapted to serve the needs of vocational education. There are three drawbacks to this approach: (1) the cost of adaptation would be high; (2) redesign of the systems would be a time-consuming process; and, most important of all, (3) the special needs of military retirees in vocational education would continue to be neglected and would be secondary to other objectives.

7. A Proposed Three-System Concept for Education

The organizational fragmentation of the educational community in the United States was found to be duplicated in the various approaches to the design and operation of placement systems for faculty and other support personnel. While the ideal of a single computerized placement system for all education is highly desirable, practical considerations rule this solution out. It is difficult to imagine when such an ideal system might materialize. But the problems faced by military retirees in finding jobs in the civilian economy are here and now; so, too, are the problems faced by vocational educators in solving the teacher shortage.

The most practical and feasible solution for the years immediately ahead is the division of the educational community into three areas, each of which should have its own computerized placement system (see Figure 8). System A, sponsored by the American Council on Education, should serve the placement needs of colleges and universities, both foreign and domestic; System B, sponsored by the National Education Association, should serve the placement needs of elementary and secondary schools; and System C, sponsored by the American Vocational Association, should serve the placement needs of schools at all levels for vocational educators.


SYSTEM A
ACADEMIC - COLLEGES AND UNIVERSITIES
SPONSOR: ACE
FOREIGN
DOMESTIC
SYSTEM B
ACADEMIC - ELEMENTARY & SECONDARY
SPONSOR: NEA
SECONDARY EDUCATION
ELEMENTARY EDUCATION
SYSTEM C
VOCATIONAL EDUCATION
SPONSOR: AVA
COLLEGES
POST-SECONDARY SCHOOLS
HIGH SCHOOLS

SYSTEM A - PROTOTYPE: PROJECT MATCH
SYSTEM B - PROTOTYPE: PROJECT ACCESS
SYSTEM C - PROTOTYPE: SEE PART III, B. OF THIS REPORT.

FIGURE 8. THREE SYSTEMS FOR MAN-JOB MATCHING IN EDUCATION

B. Recommendations

1. A Military Retiree-Job Matching System Should be Designed and Implemented

a. System Description

1) System Concept

The recommended system is essentially composed of four parts: (1) the educational and work histories of military retiree job candidates which would be maintained in a file; (2) standardized job vacancy descriptions for teachers which would be provided by vocational education administrators; (3) state certification requirements for vocational education teachers; and (4) a computer operation which would match military retirees, who meet state certification requirements, to reported job vacancies.

After appropriate matches of retirees to job vacancies in specific states have been made by the computer, it would print out the histories of selected job candidates in rank order by their qualifications. The histories would then be mailed to potential employers for their consideration. The initiative to contact job candidates for additional information or to arrange interviews would remain with the prospective employer. No evaluations of personnel are made by the computer. All decisions to hire or not to hire are made by vocational educators; all decisions to accept or reject job offers are made by the retirees. The computer's primary function would be to reduce the number of possible job candidates for any given job vacancy to a manageable number based on the qualifications of the candidates, and to serve as a mechanism to bring the military retirees and the vocational educators together.

The recommended system would differ from other placement systems in that it would play an active role in making military retirees aware of the second career potentials of vocational education. It would act as a recruiting arm of vocational education. Also, unlike other placement systems, no fees would be charged the military retirees or the vocational educators for using the system. A brief description of the system's inputs, operations, and outputs is presented below (see Figure 9).

2) System Inputs

Military Retiree Data - It would be necessary for each of the military services to provide the system operator with the names and addresses of all retirees on a regular basis. A copy of Department of Defense form #214, "Report of Transfer or Discharge," could be used for this purpose (see Appendix E). All retirees would receive from the system operator a two-page introduction to the field of vocational education and a description of the system's purpose and functions. The retirees would have the option of participating in the system and, if interested, would fill out a detailed questionnaire covering their occupational and educational backgrounds. This information would be coded and keypunched for inclusion in the military retiree data base.

State Certification Requirements - Each state would be requested to provide the system operator with its minimum occupational and educational requirements for teacher certification in vocational education. These data would be coded and keypunched for inclusion in the state certification requirements data base.

Job Requests - A vocational administrator seeking teacher candidates for a job vacancy would send to the system operator a completed

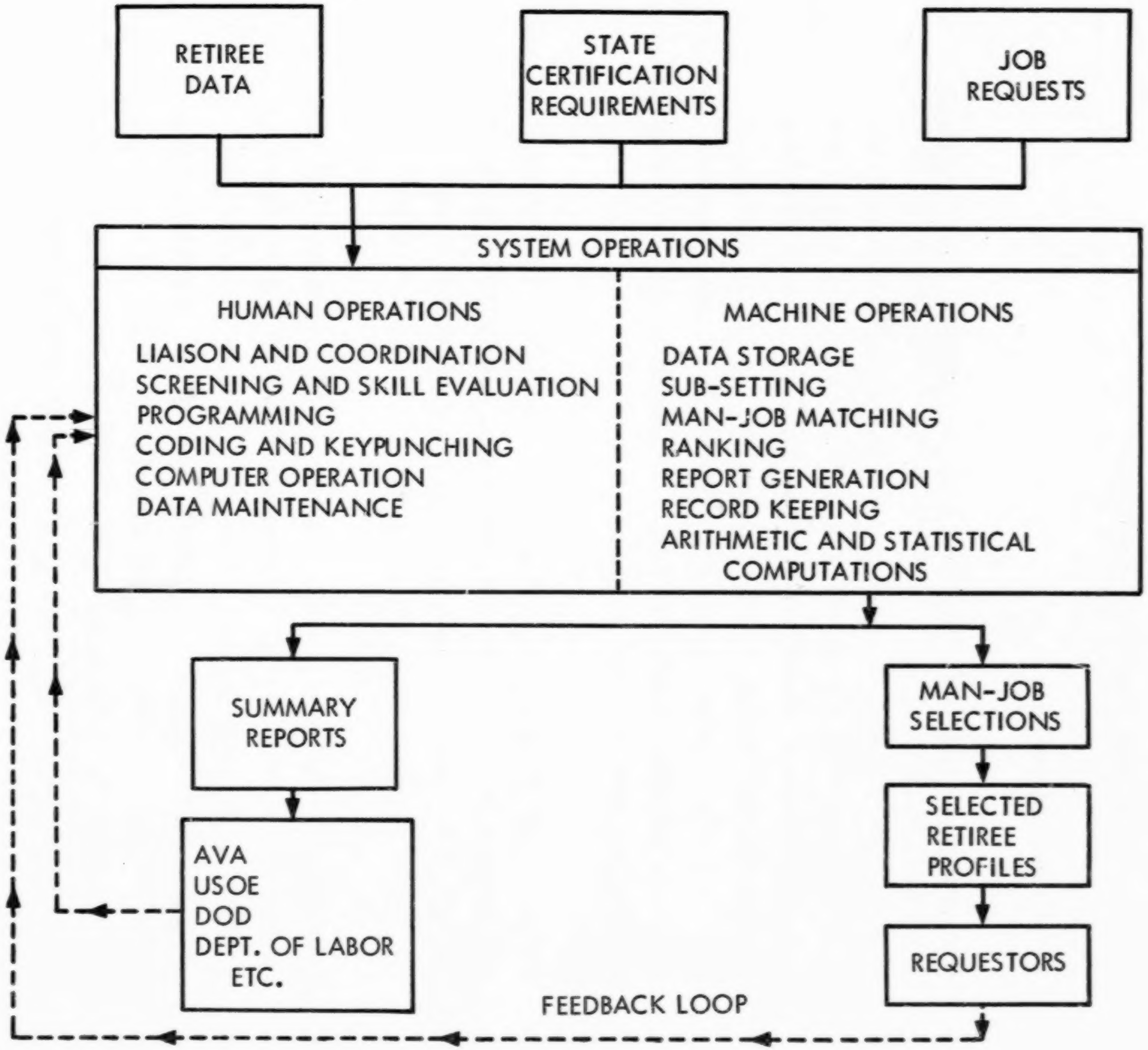

RETIREE DATA
STATE CERTIFICATION REQUIREMENTS
JOB REQUESTS
SYSTEM OPERATIONS
HUMAN OPERATIONS
LIAISON AND COORDINATION
SCREENING AND SKILL EVALUATION
PROGRAMMING
CODING AND KEYPUNCHING
COMPUTER OPERATION
DATA MAINTENANCE
MACHINE OPERATIONS
DATA STORAGE
SUB-SETTING
MAN-JOB MATCHING
RANKING
REPORT GENERATION
RECORD KEEPING
ARITHMETIC AND STATISTICAL COMPUTATIONS
SUMMARY REPORTS
AVA
USOE
DOD
DEPT. OF LABOR
ETC.
MAN-JOB SELECTIONS
SELECTED RETIREE PROFILES
REQUESTORS
FEEDBACK LOOP

FIGURE 9. SYSTEM OPERATIONS AND DATA FLOW

standardized teaching vacancy form. This form would describe the attributes of the available position.

3) System Operations

Conversion of Military Retiree Skill Backgrounds Into Civilian Occupational Categories - A major task of the system operator would be the manual analysis of the skill backgrounds of all military retirees who elect to participate in the system and the conversion of those backgrounds into equivalent civilian and vocational occupational categories. As noted earlier in this report, military specialty codes are not satisfactory for this purpose; hence, it would be necessary for an occupations analyst to perform this function.

Computerized Matching - When a job vacancy form is received by the system operator, the computer would search the military retiree data base, and using selection criteria derived from the state certification requirements and the attributes of the job vacancy, it would identify qualified retirees. Retiree profiles of the qualified candidates would be printed out by computer and mailed by the system operator to the prospective employer. It would be the responsibility of the vocational administrators who use the system to keep the system operator informed of the results of all attempts to match retirees to job requests by filling out a standardized job results form. This process is represented by the broken line in Figure 9.

Report Generation - As part of its on-going operations, the computer would record its own operations and provide reports. The format and contents of reports would be designed by the system operator to meet the needs of various system users, i.e., the AVA, the DOD, the military services, state directors of vocational education, etc. The computer would have the capability to provide a variety of arithmetical and statistical reports.

4) System Outputs

Military Retiree Profiles - As noted above, the profiles of qualified military retirees would be printed out by the computer in response to job vacancy requests and would be mailed by the system operator to the prospective employers. These profiles would have a standardized format and would contain enough basic information about a retiree's background so that the vocational administrator could decide whether or not further contact with a retiree was desirable.

Reports and Records - As noted above with reference to the report generation function, the computer would provide regular standardized reports and it would also be able to provide non-standardized reports and records as required by the various system users and by the system operator.

b. System Software and Hardware Requirements

1) The Revolution in Software Systems

The development of the computerized aspects of the recommended system described above can be accomplished relatively inexpensively and quickly if advantage is taken of recent developments in data processing technology. In the past few years, data processing by computer has been undergoing a revolution. There now exist operational software systems which have the following characteristics: general purpose; off-the-shelf; natural language; and data management by the user.

General Purpose - Until recently, each computerized system was designed to meet the special needs of a unique user. This was an extremely costly and time-consuming process. If the user's needs changed while the system was being designed, the system might become obsolete before it was built. Software systems now exist which are designed at such a general level that they can be used by different users with different needs, and so that the same system can meet the changing informational needs of the same user through time.

Off-The-Shelf - A general purpose system is also an off-the-shelf system. Since it can meet the needs of different users or different needs of the same user through time, it means that a new user does not have to undergo the costly process of creating his own system. He can simply purchase the use of the existing system off-the-shelf and adapt it to his particular needs.

Natural Language - The new software systems are designed so that the typical user does not have to rely upon programming specialists to communicate with the system. The language which controls and operates the system is written in a form of English so that the user, after a short period of training, can interact with the system directly. Simply by specifying commands such as SORT, PRINT, SUBSET, COMBINE, etc., the user has control over a fairly complete set of standard computer programs.

Data Management by the User - The new software systems provide the user through simple control mechanisms, as noted above, with the ability to perform the normal data file manipulations such as file-building, file-maintenance, data selection, and report generation. Variable format data such as English text can also be handled. Once the user is familiar with the system, he can, without the assistance of a programmer, extract data from the data base, process data and create new files, transform and analyze data, and produce reports and displays in a variety of formats.

2) Software Requirements

For the purposes of the system described earlier in this section of the report, it is recommended that a general purpose data management program be employed. The program should have the capability of translating the user's language to machine-understandable language and communicate it to the machine. The program would not need to operate in real time since batch processing would satisfy the user's requirements.

The computer program should provide a means of taking initially unorganized lines of data (records) and be able to organize them in a describable and retrievable manner into data sets (files). The program should maintain these files, create new ones, and print out the contents of these files in various formats as required. The program should be able to process alphabetic and numeric data, as well as English language text.

A program having the aforementioned features would permit the system operator to specify and execute fairly complex computer runs without the considerable investment in time and money normally associated with programming, debugging, and program documentation. Such a program could be implemented when a reasonable short time span is allowed for program coding; it could function within the space limitations of a small computer; and its capabilities represent the capacity for high work volume and responsiveness to general need.

3) Hardware Requirements

Computer - The minimum computer characteristics could be met by an IBM 1401 or other computer of equal or greater power. The primary features required are as follows: core memory should have a minimum capacity of 8,000 characters; advanced programming features should include index registers, the ability to multiply and divide, the ability to rank values, and the ability to compare two fields for high, low or equal; rental costs should not exceed $150 per hour.

Peripheral Equipment - Supporting equipment should include: four or five tape drives; a keypunch; and a verifier.

c. Development of the Operational System

1) Pilot Demonstration Phase

A two-year pilot demonstration of the proposed military retiree-job matching system on a nationwide basis is recommended.

The first year would be devoted to system design, development, and implementation. Approximately four to six months would be required for liaison and coordination, establishment of procedures, design of inputs and outputs, design of the military retiree questionnaire, design of standardized job vacancy and match results forms, and computer programming. Six to eight months would be required for trial operations. This experimental period would be used to refine all inputs, outputs, and operating procedures. Service to system users would continue during this period. Since the system would operate in a batch processing mode, modifications to the system could be made during non-operational periods.

During the first year, the following estimated manning of the system would be required: Director; Assistant Director; Occupations Analyst; Programmer; Secretary; Keypuncher/Clerk. Only one person in each job category would be required.

The system could be completely operational in the second year. Due to the capabilities of currently available user-oriented data management systems, continuing changes to the system could be handled on a routine basis without affecting system operations.

During the second year, the system manning would be the same except that the Programmer and the Keypuncher/Clerk would only be required on a half-time basis.

The total estimated costs of the system for the first year of development and trial operations, including machine time, would be approximately $225,000. For the second year of routine operations all expenses are estimated at $175,000. These cost estimates are based on the use of a readily available user-oriented data management system. Costs would be considerably higher if this type of system were not utilized.

The two-year pilot demonstration period would make it possible for the primary system users, such as the state directors of vocational education, local vocational administrators, the Department of Defense, and the American Vocational Association to evaluate the effectiveness of the system in meeting its objectives. If desirable, at the beginning of the third year, assuming the system received a positive evaluation, the operation of the system could achieve permanent status and could be assumed by the American Vocational Association or a non-profit organization in conjunction with the U.S. Employment Service, which is interested in developing its capabilities for computerized professional placement.

2) Funders

One of the biggest problems facing the variety of current man-job matching systems, both in and outside of education, is funding on a permanent basis. Many fee-charging man-job matching systems have encountered difficulty in establishing data bases large enough to make it attractive for potential employers and employees to enroll. Several of these systems have been operating at a loss and have had to be subsidized, at least temporarily, so that they might eliminate their fees and thereby encourage greater enrollment. Job placement assistance should be viewed as a government obligation to the military retiree and therefore the use of a fee to support the system would be inappropriate. The military retiree man-job matching system should have guaranteed financial backing.

There are several federal agencies that possess access to funds and have a strong stake in the success of a system of the type being recommended in this report. The Department of Defense is concerned with second careers for military retirees and the fuller utilization by the civilian sector of their valuable skills and experience after retirement from military service. The Department of Labor maintains a continuing interest in more effective manpower utilization and is also exploring the use of computers to accomplish the man-job match. Within the Department of Labor, the Office of Manpower Policy Evaluation and Research has an interest in this kind of demonstrable experimental program. The Office of Economic Opportunity is involved in many programs, often in cooperation with the Department of Labor, directly or indirectly related to training and retraining in poverty programs. The U.S. Office of Education is concerned about the future quality of vocational education. These agencies could individually or in consort provide the funds necessary to develop, test, and operate the system.

3) System Sponsor

The ideal sponsor for the military retiree-job matching system recommended in this report is the American Vocational Association. This organization has the support and cooperation of state directors of vocational education and the teachers in the field. It is the professional organization in vocational education. The American Association of Junior Colleges would be an appropriate co-sponsor because of its involvement in, and concern with, vocational education programs.

4) System Operator

The system operator should have the following capabilities: experience and recognized competence in systems analysis, information system design, computer programming, and familiarity with the most advanced developments in data management technology and user languages. The operator must have up-to-date computer facilities and, preferably, have educators on its staff familiar with system design and computer programming.

It is recommended that the system operator be an independent, non-profit organization. The system operator should have no organizational ties to any existing level or type of education so that it may be completely responsive to the needs of both vocational education, as expressed by the sponsor(s)--the professional association(s)--and the military retirees.

5) Users

The primary users of the system would be the vocational educators, local or state, who have need for teacher personnel and the retirees who have chosen vocational education as a second career.

In addition to the initial users, many organizations could avail themselves of selected services of the system. For example, the Department of Defense might want to know how many retirees are on file with the system, how many have been placed, and how many have withdrawn. The American Vocational Association or the National Education Association might be interested in the numbers of requests received by the system, which states have the greatest need for teachers, which states are meeting their recruitment needs through utilization of the system, etc. The Department of Labor might be interested in the particular skills in demand and how well the demand is being satisfied. The manpower training programs of the Office of Economic Opportunity, the Job Corps, and similar agencies might satisfy many of their needs for instructors and other skilled personnel through utilization of the system.

2. Potential System Expansion

The recommended system has the immediate goal of assisting the placement of military retirees who are interested in and qualified for teaching positions in vocational education. However, the system should be designed in such a way that it could be readily expanded to serve (1) all the job-seeking needs of all military retirees, and (2) all the personnel-seeking needs of employers in vocational education.

It is apparent, for example, that the proposed manpower pool of military retirees could provide highly qualified candidates for jobs in non-vocational areas of education, and for education jobs in the undeveloped countries of the world. The manpower pool could provide candidates for highly skilled technical positions in industry and government. And it could be used to provide a source of much needed manpower in government sponsored programs, such as MDTA and OEO programs, concerned with providing training and retraining for the unskilled and culturally disadvantaged.

The system could also be expanded to include not only military retirees in the data base, but also all potential job candidates interested in vocational education careers. Thus, a data base sub-set could include the histories of each year's graduates from colleges providing vocational teacher training.

It should be emphasized that these potential expansions of the system's functions are long-range possibilities. They would not be attempted until the system was successfully meeting its primary objective--providing qualified military retiree candidates for teaching vacancies in vocational education.

3. Interim Recommendations for Informing Military Retirees About Second Careers in Vocational Education

It is believed that hundreds of potential candidates for job vacancies in vocational education could be found relatively easily and quickly among the ranks of military retirees if a few simple steps were undertaken. There is no need to wait a year or more for a computerized system to be built. The retirees need to be informed now about the field of vocational education; they need to be told that there are job vacancies in this field throughout the nation; and they must understand that it is possible for them to qualify educationally as potential candidates with only a high school diploma.

The following interim steps are recommended:

a. All men in military service should be mailed, at least six months prior to their date of retirement, a two-page brochure prepared by the American Vocational Association describing the objectives of vocational education, indicating that there are teaching vacancies, pointing out that military retirees without college degrees are considered desirable job candidates if otherwise qualified, and suggesting who the retiree should contact for further information.

b. Officials of the Department of Defense and of the U.S. Employment Service should direct their personnel responsible for the conduct of the DOD/USES cooperative retirement orientation program to review the material in the two-page pamphlet referred to above during the orientation lectures.

c. The Department of Defense should immediately revise its publication, Teaching: A Second Career, in close cooperation with the American Vocational Association, so that at least one-third of the material in the publication is devoted to the field of vocational education.

A cooperative campaign, incorporating the steps noted above, mounted by the Department of Defense and the American Vocational Association would not be costly and no modification to the present DOD/USES retirement orientation program would be necessary. Such a campaign, it is believed, would produce results well worth the costs required.

PART IV. PROJECT EVALUATION

A. Accomplishment of Objectives

The technical feasibility of developing a computer-assisted system for fitting military retirees to job vacancies in vocational education programs has been demonstrated. A computerized segment of such a system using a data base composed of the personal histories of 323 military retirees acquired by questionnaires is operational on the System Development Corporation time-sharing system. The manual segment of system operations--determining the compatibility between military occupational specialties and civilian occupations, and coding questionnaire data for keypunch operations--was performed by the project investigators with the assistance of other SDC personnel.

The feasibility of such a system, in the broader sense, has also been demonstrated with respect to: (1) the compatibility between military occupational specialties and civilian occupations; (2) the interest of military retirees in and their qualifications for second careers in vocational education; and (3) minimum state educational and occupational requirements for teachers in vocational education which constitute no obstacle to the employment of selected military retirees.

A major contribution to the success of the technical aspects of the demonstration was the use of the System Development Corporation's in-house personnel data retrieval system, EPIC. This computer program was successfully modified for use in this project based on the specifications written by the project investigators.

Investigation of other operational computerized placement systems, such as GRAD and LINCS, contributed to the conclusion that a military retiree-job placement system in vocational education is feasible.

Recent advances in computer programming technology indicate that, in the future, off-the-shelf data management systems will make the storing and retrieval of personnel data for job matching purposes a relatively simple technical operation (21).

B. Problems Encountered

The project was delayed at its inception as a result of problems in coordination between the U.S. Office of Education and the Department of Defense, and between the latter and the System Development Corporation.

Prior to submission of the project proposal, communication had occurred with a representative of the DOD outlining the proposed study and an assumption was made by SDC that cooperation of the DOD would be automatic once the proposal was officially approved by USOE. This was a false assumption since there is a prescribed process whereby a study requiring participation by the military services requires careful consideration by DOD before its approval can be obtained. This process takes time and it was not planned for in the project schedule.

Once authorization to proceed with the project was received from the USOE, SDC representatives called on the DOD representatives at the Pentagon and were informed that an inter-departmental request would be required from USOE by DOD before permission for SDC to contact the military services could be granted. The request, in the form of a letter, was written by USOE on January 18 but it was not transmitted from USOE to DOD until February 18. Authorization for SDC to proceed with the project was not obtained by letter from DOD until March 25. The names of service representatives were not provided to SDC by DOD until 14 April. Thus, a total of four months was consumed by coordination activities and associated delays. Since approximately two months had been scheduled for these coordination activities, a project slippage of approximately two months occurred.

Additional delay in the distribution of the military questionnaires was encountered since the addresses of retirees provided by the Navy personnel data center had to be decoded before they could be used. This accounted for another delay of approximately three weeks. As a result of this delay and the time required for the mailing and return of the completed questionnaires by the retirees, many of them had left the service by the time interviewing began.

C. Project Limitations

1. The delays described above, as well as the lack of concentration of retirees in given locations, particularly in the case of Army personnel, accounts for the relatively small sample of 26 retirees who were interviewed.* Generalizations, described in Part II, based upon such a small sample must, of course, be regarded only as suggestive rather than conclusive.

2. Matching military retirees to jobs in vocational education by using service specialty code numbers was unsatisfactory. As a result, no simple solution was found to the problem of determining by objective criteria the compatibility of military specialties to civilian occupational categories, including similar categories in vocational education. Department of Defense and service military-civilian job conversion tables were also found to be unsatisfactory. To accomplish the matches made for the purposes of this project, the investigators found it necessary to rely heavily upon their personal judgement, supported by extensive study of military job descriptions in official service

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* The Navy and the Army were strikingly different with respect to geographical concentrations of retirees. While Army men were widely distributed with no concentrations in any particular area, the Navy retirees were largely concentrated in the San Diego area. This accounts for the large proportion of Navy retirees who were interviewed.

documents and civilian job descriptions in the Department of Labor's Dictionary of Occupational Titles.

3. The sample of military questionnaire returns from the three major services was not ideal. Returns from the Air Force and the Army were unexpectedly low (46 of the questionnaires from these services were returned undelivered) while returns from the Navy (in spite of 54 undelivered questionnaires) were higher than anticipated due to the larger number of names and addresses provided by the Navy--all the retirees for June and July.

4. No satisfactory method was found for predicting the need for instructors or other personnel in future vocational education programs by occupational categories. The state directors of vocational education do not maintain complete historical records of such data, nor are they able to predict their future needs.

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Appendix A

THE MILITARY QUESTIONNAIRE

SYSTEM DEVELOPMENT CORPORATION

MILITARY RETIREE QUESTIONNAIRE

1. Name (Print) ______________________ (First) (Middle) (Last)
4. Rank __________
2. Mailing Address ______________________
5. Serial Number __________
(City) __________ (State) __________
6. Age ______
3. Air Force ☐ Army ☐ Navy ☐ Home Phone __________
7. Female ☐ Male ☐
8. Specialty Code Number (MOS, NEC, NOBC, AFSC) Primary __________
Secondary __________
9. Specialty Title Primary __________
Secondary __________

10. Check box indicating your highest school year completed or degree obtained:

Elementary								High School				College					Graduate				Post
1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	BA	1	2	MA	PhD	Grad

11. Please list the USAFI course numbers and titles you have taken, if any, while in service:

Course Number	Course Title

(Use the reverse side of this page if additional space is necessary.)

12. Please list any civilian or military licenses or certificates granted to you in trade or technical skills. Check in appropriate box if civilian or military:

Name of License or Certificate	Year Granted	Civ.	Mil.

(Use the reverse side of this page if additional space is necessary.)

13. Please list your full-time civilian employment experience (jobs held one year or more). List the most recent positions first.

Years of Employment From To	Exact Title of Position	Description of Position

-2-

14. Please list your duty assignments (one year or longer) for the past ten years. List the most recent assignments first. Indicate the total number of years spent in each assignment.

Years Held	Specialty Code No. (MOS, NEC, etc.)	Specialty Title

15. Have you been an instructor in formal military training programs or military schools?

Yes ☐ No ☐ Total months as instructor ______

16. If yes, list the course titles and briefly describe the content of each course:

Course Title	Course Description	Months as Instructor

17. Please list each instructor training course completed in service, if any:

Year Taken	Course Title

18. In which state do you plan to retire? ______________________

19. If offered a good job, in which other states would you be willing to live when you retire? Check "Any State" box or list states in order of preference:

☐ Any State

1.

2.

3.

4.

5.

20. Check in the appropriate box the minimum annual salary for a full-time job that you would consider in addition to your retirement pay:

$3500 - $4500 ☐
$4600 - $5500 ☐
$5600 - $6500 ☐
$6600 - $7500 ☐
$7600 - $8500 ☐
$8600 - $9500 ☐
More than $9500 ☐

21. Would you be interested in a second career as an instructor of trade and technical subjects? Check one:

Yes ☐ No ☐ Undecided ☐

22. If your answer is "No," would you state briefly why?

23. If your answer is "Undecided," would you state briefly why?

24. The following trade and technical skills are currently being taught in technical schools, junior colleges, adult education classes, etc. Please check each skill that you feel qualified to teach or in which you believe you have expert knowledge. If none, check "None."

____ None

____ Aircraft Mechanics
____ Auto Body and Fender Repair
____ Auto Mechanics
____ Business (ADP) Machine Repair
____ Carpentry
____ Dental Technician
____ Diesel Mechanics
____ Drafting, Mechanical
____ Dry Cleaning
____ Electrical Appliance Repair
____ Electricity/Electrical Technology
____ Electronic Data Processing (Operations)
____ Electronics
____ Food Trades
____ Instrument Repair
____ Machine Shop
____ Medical Technology
____ Nursing and Hospital Care
____ Optical Mechanics
____ Photography
____ Plumbing and Pipefitting
____ Police Science
____ Printing and Duplicating
____ Radio and T.V. Repair
____ Refrigeration and Air Conditioning
____ Sheet Metal Work
____ Welding

Signature	Date

Appendix B

THE STATE QUESTIONNAIRE

SYSTEM DEVELOPMENT CORPORATION

Survey of State Trade and Technical Education Teaching Positions

Part I

The questions in this part are directed toward determining the minimum requirements for the employment of teachers of trade and technical education. If there are notable exceptions to the answers given, please indicate these in the space provided or on the back of the pages.

1. What is the minimum number of years of general education required for teacher certification in trade and technical education? Check one in each column.

	Regular Credential	Provisional Credential
Less than High School Diploma		
High School Diploma		
1 year college		
AA degree		
3 years college		
BA degree		
More than BA degree		

Exceptions:

2. What is the minimum amount of occupational experience required for teacher certification in trade and technical education? Occupations requiring a license or certificate should be checked separately. Check the appropriate box in each row.

Years	0	1	2	3	4	5	6	7	More than seven
Licensed skills									
Other occupations									

Exceptions:

3. Does your state allow a postponement of requirements in granting the teaching certificate in trade and technical education?

Requirements	Yes	No	Exceptions
Teacher Education			
General Education			
Occupational Experience			
Qualifying Examination			
Special Courses			

Explanation of exceptions:

4. Does your state give credit toward certification for in-service educational experience and USAFI courses? For example, credit might be given in accordance with the recommendations made by the Commission on Accreditation of Service Experiences (CASE). YES ___ NO ___

Exceptions:

5. Does your state give credit toward certification to military personnel who have formal instructor training and experience in military service classes? YES ___ NO ___

Exceptions:

6. Does your state give credit toward certification to military personnel who have instructional experience but no formal training? YES ___ NO ___

Exceptions:

7. Does your state give credit toward certification for applicable occupational and skill experience acquired in military service? YES ___ NO ___

Exceptions:

Part II

This section is concerned with ascertaining the number of full-time teachers who taught specific trade and technical courses during three selected time periods. It is also concerned with identifying trade and technical areas in which your state anticipates shortages of full-time teachers.

Please fill in the columns from your records as indicated:

Trade and Technical Courses	Number of full-time teachers employed 1961-1962	Number of full-time teachers employed 1963-1964	Number of full-time teachers employed 1965-1966	Anticipated number of unfilled positions 1966-1967
Aircraft Mechanics				
Auto Body and Fender Repair				
Auto Mechanics				
Business (ADP) Machine Repair				
Carpentry				
Dental Technician				
Diesel Mechanics				
Drafting, Mechanical				
Dry Cleaning				
Electrical Appliance Repair				
Electricity/Electrical Technology				
Electronic Data Processing (Operations)				
Electronics				
Food Trades				
Instrument Repair				
Machine Shop				
Medical Technology				
Nursing & Hospital Care				
Optical Mechanics				
Photography				
Plumbing & Pipefitting				
Police Science				
Printing				
Radio & T.V. Repair				
Refrigeration and Air Conditioning				
Sheet Metalwork				
Welding				

In the space provided below list any additional trade and technical courses for which you anticipate unfilled teaching positions:	Anticipated number of unfilled positions 1966-1967

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Appendix C

THE STATE STRUCTURED INTERVIEW

FLORIDA

STRUCTURED INTERVIEW

Florida

1. Does the state differentiate in its teacher certification requirements between Trade and Industrial Education and Technical Education?

   Yes, certification requirements in Trade and Industrial Education differ from those for Technical Education.

2. If yes: How are "technical" courses defined?

   "Technical" courses are closely related to industrial courses but usually are more concerned with theory and the use of instruments than with the development of skills with tools and machines.

3. If yes: Can we obtain the course titles for each type of education?

   Titles of courses in Industrial Education and Technical Education may be found on pps. 37-52, Bulletin 70H-15, Adult Offerings Under Minimum Foundation Program Support, a copy of which is attached.

4. Can the state residency and course requirements (American history and government) be waived in the granting of high school equivalency certificates based on GED tests for military retirees?

   No, the requirements must be met by all applicants for the equivalency diploma. Applicants may establish high school credit in American History and Government by passing standardized tests for the two subjects at the close of the courses.

5. What defines a "resident" in Florida?

   A resident of Florida is a citizen of the United States who has continuously resided in the state for one year and in the county of residence for six months.

6. May training in military service instructor schools be substituted for professional education requirements?

   No, unless the training is evaluated by a higher education institution and converted into semester hours, assuming, of course, that the training is appropriately directed.

7. Does the state now have available data on the number of full-time teachers employed during the academic year beginning in September, 1965 in the subjects on our questionnaire?

   The number of full-time teachers teaching Industrial Education subjects during the 1965-66 school year is shown on the attached list. The attached directory of Technical Education teachers shows the 1965-66 personnel for teaching Technical Education subjects.

8. Does the state now have available data on the anticipated number of unfilled positions during the academic year beginning in September, 1966 in the subjects listed on our questionnaire?

   The information on the anticipated number of unfilled positions in Industrial and Technical Education by subjects during the academic year beginning in September, 1966, is not available at this time.

9. What experience has the state had in using military retirees as instructors in T & I and Technical Education?

   Retired military personnel is one among several valuable sources of teachers in both Industrial and Technical Education. Quite a number of retired military personnel locate permanently in Florida and a large percentage of Technical Education teachers are retirees.

10. Would the state be interested in receiving regularly the names and addresses of military retirees qualified by the state's standards to teach T & I or Technical subjects? If yes: How frequently -

    Monthly Semi-annually Annually

    If yes: In what subjects:

    T & I Technical

    This information would be very valuable for both Industrial and Technical Education. It should probably be supplied to Mr. Jesse W. Burt, Consultant, Teacher Recruitment, State Department of Education, a central state agency responsible for teacher recruitment. In addition, it should be noted that Florida schools are operated by the County Superintendents and County Boards of Public Instruction of the 67 counties. These individuals are directly responsible for the employment of teaching, supervisory, and administrative personnel. Lists of local directors of Vocational Education and of junior college deans are attached. Direct mailing to these individuals may be helpful.

11. For what subjects does the state now experience difficulty in recruiting qualified instructors?

    Florida's program of Industrial and Technical Education is expanding rapidly and openings for qualified teachers occur frequently. However, the number of such openings is not maintained by the State Department although some difficulty has been experienced, particularly in Technical Education, in securing qualified instructors for practically all technologies.

12. For what subjects does the state anticipate a need for new instructors in the next few years?

    No attempt has been made to predict teacher needs for specific occupational training programs on a long range basis but a need for new instructors in all of the technical areas listed in the attached bulletin is anticipated.

13. What agencies or organizations does the state now use to locate potential instructors, administrators, and counselors? AVA, USES, etc.?

    The State Department of Education has a Teacher Recruiting Unit at the state level. This Unit keeps in contact with the educational administrators on the county level in regard to job openings and teacher availability. Information on job openings and opportunities, along with a brochure on Florida, are sent to college placement directors throughout the United States. Advertisements are placed in professional journals. Education in Florida is depicted through booths installed at conventions. Brochures are sent to prospective teachers who make inquiry through the Unit. The Unit also works cooperatively with the United States Employment Service and in general acts as a clearing house for teacher recruitment for the 67 counties in Florida.

14. Does our sample retiree profile contain the kinds of information the state would want as a basis for selecting applicants for initial interviews for teaching, administrative, and counseling jobs?

    The sample retiree profile appears to contain much of the kind of information needed in selecting applicants for initial interviews for teaching, administrative, and counseling jobs.

Appendix D

STRUCTURED INTERVIEW FOR SERVICE PERSONNEL DATA CENTERS

STRUCTURED INTERVIEW

SERVICE BUREAUS OF PERSONNEL

ARMY NAVY AIR FORCE

1. Does the Personnel Bureau have the capability to provide by machine printout the content of each retiree's history as indicated in our content list? (See attached content list.)

2. If no: Which items could be supplied?

   Which items could not be supplied?

3. If yes: What are your system's constraints on the format for the content indicated in our list (attached sheet)?

4. With what frequency could your system provide machine or manual output on all the retiree data requested?

   Monthly Semi-annually Annually Other

5. Would it be less costly and time-consuming for your system to provide the information on retirees requested by specialty code numbers, by specialty titles, or some other method?

6. What is the current status of your service's specialty code number and specialty title system?

   ( ) Unchanged during calendar year 1966?
   ( ) Undergoing changes during calendar year 1966?
   ( ) Will change during calendar year 1967?
   ( ) Other. If other, please explain:

7. What is the current status of your service's personnel system:

   ( ) completely manual mode of operation
   ( ) partly manual-partly automated modes of operation
   ( ) completely automated mode of operation
   ( ) in transition from manual to automated mode of operation

8. What type of change to your personnel system would be needed to meet our request for data on retirees?

   ( ) computer programming
   ( ) manual operating procedures
   ( ) new hardware
   ( ) other. If other, please explain:

9. Can you estimate the cost of the changes required to meet our request for data on retirees?

10. Whose approval (agency or individual) must be obtained to change your personnel system, if necessary, to meet the requirement to provide the retiree data requested?

11. Are there security or other reasons why your service could not provide the data requested on retirees to non-military agencies such as the U.S. Employment Service or the American Vocational Association?

CONTENT OF INDIVIDUAL RETIREE'S HISTORY REQUIRED FROM EACH MILITARY SERVICE

ITEMS

1. Retiree's name
2. Home address
3. Home telephone number
4. Serial number
5. Pay grade
6. Rank
7. Sex
8. Birth date
9. Primary specialty code number (AFSC, NEC, NOBC, MOS)
10. Primary specialty title
11. Secondary specialty code number
12. Secondary specialty title
13. General education level:

    Highest elementary grade completed
    Highest secondary grade completed
    High school diploma earned
    GED-high school equivalency certificate earned
    GED-college year equivalency certificate earned
    College years completed (not in service)

    College years completed while in service:

      Name of college - Courses taken - Date taken

    College diploma (AA, BA, BS)
    Graduate years completed
    Graduate degrees earned (MA, MS, ME); (MD, D.ed., Ph.D)

    Post-graduate work:

      Name of school - courses taken - date taken

14. In-service schooling:

    List of all in-service formal school training and education; titles of courses and dates taken; name of school.

15. List of all USAFI courses taken: number of each course; course titles; and dates taken.

16. List of all military licenses and certificates earned: titles and dates.

17. List of all duty assignments since entering service: titles of positions; duties or responsibilities; dates.

18. Identification of the retiree as an "Instructor" (by specialty code number or title; service as an instructor in a service school or training command; etc.); months of service as an Instructor.

19. List of all formal instructor courses taken: names of schools; courses taken; dates.

20. List of all courses and/or subjects taught by retiree as an official Instructor: names of schools; titles of courses or subjects; dates courses or subjects were given.

3

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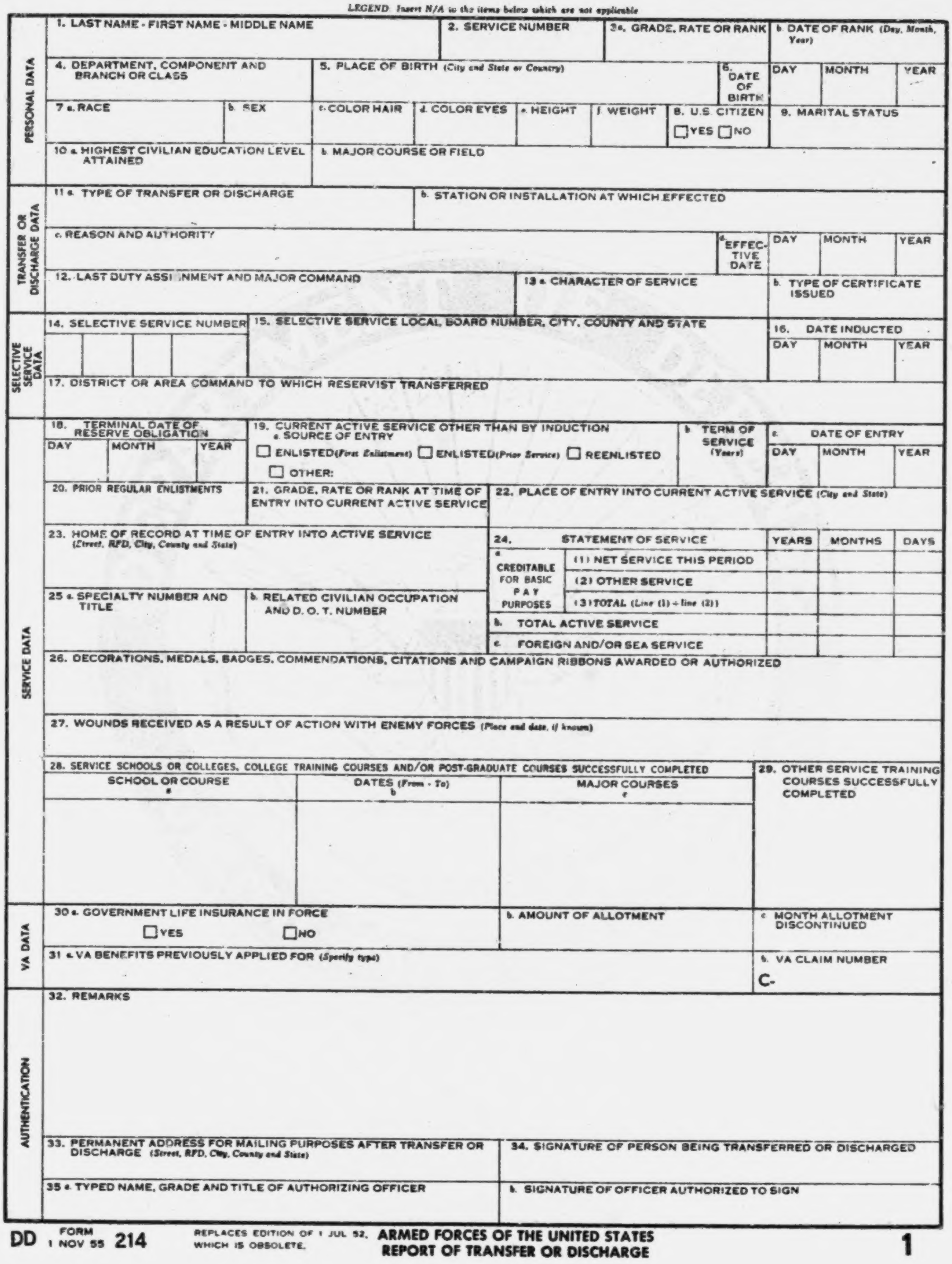
Appendix E

DEPARTMENT OF DEFENSE FORM 214:

"REPORT OF TRANSFER OR DISCHARGE"



LEGEND: Insert N/A to the items below which are not applicable

PERSONAL DATA

1. LAST NAME - FIRST NAME - MIDDLE NAME
2. SERVICE NUMBER
3a. GRADE, RATE OR RANK
b. DATE OF RANK (Day, Month, Year)
4. DEPARTMENT, COMPONENT AND BRANCH OR CLASS
5. PLACE OF BIRTH (City and State or Country)
6. DATE OF BIRTH — DAY MONTH YEAR
7 a. RACE
b. SEX
c. COLOR HAIR
d. COLOR EYES
e. HEIGHT
f. WEIGHT
8. U.S. CITIZEN ☐ YES ☐ NO
9. MARITAL STATUS
10 a. HIGHEST CIVILIAN EDUCATION LEVEL ATTAINED
b. MAJOR COURSE OR FIELD

TRANSFER OR DISCHARGE DATA

11 a. TYPE OF TRANSFER OR DISCHARGE
b. STATION OR INSTALLATION AT WHICH EFFECTED
c. REASON AND AUTHORITY
d. EFFECTIVE DATE — DAY MONTH YEAR
12. LAST DUTY ASSIGNMENT AND MAJOR COMMAND
13 a. CHARACTER OF SERVICE
b. TYPE OF CERTIFICATE ISSUED

SELECTIVE SERVICE DATA

14. SELECTIVE SERVICE NUMBER
15. SELECTIVE SERVICE LOCAL BOARD NUMBER, CITY, COUNTY AND STATE
16. DATE INDUCTED — DAY MONTH YEAR
17. DISTRICT OR AREA COMMAND TO WHICH RESERVIST TRANSFERRED

SERVICE DATA

18. TERMINAL DATE OF RESERVE OBLIGATION — DAY MONTH YEAR
19. CURRENT ACTIVE SERVICE OTHER THAN BY INDUCTION
a. SOURCE OF ENTRY ☐ ENLISTED (First Enlistment) ☐ ENLISTED (Prior Service) ☐ REENLISTED ☐ OTHER:
b. TERM OF SERVICE (Years)
c. DATE OF ENTRY — DAY MONTH YEAR
20. PRIOR REGULAR ENLISTMENTS
21. GRADE, RATE OR RANK AT TIME OF ENTRY INTO CURRENT ACTIVE SERVICE
22. PLACE OF ENTRY INTO CURRENT ACTIVE SERVICE (City and State)
23. HOME OF RECORD AT TIME OF ENTRY INTO ACTIVE SERVICE (Street, RFD, City, County and State)

24. STATEMENT OF SERVICE		YEARS	MONTHS	DAYS
a. CREDITABLE FOR BASIC PAY PURPOSES	(1) NET SERVICE THIS PERIOD			
	(2) OTHER SERVICE			
	(3) TOTAL (Line (1) + line (2))			
b. TOTAL ACTIVE SERVICE				
c. FOREIGN AND/OR SEA SERVICE				

25 a. SPECIALTY NUMBER AND TITLE
b. RELATED CIVILIAN OCCUPATION AND D. O. T. NUMBER
26. DECORATIONS, MEDALS, BADGES, COMMENDATIONS, CITATIONS AND CAMPAIGN RIBBONS AWARDED OR AUTHORIZED
27. WOUNDS RECEIVED AS A RESULT OF ACTION WITH ENEMY FORCES (Place and date, if known)
28. SERVICE SCHOOLS OR COLLEGES, COLLEGE TRAINING COURSES AND/OR POST-GRADUATE COURSES SUCCESSFULLY COMPLETED

SCHOOL OR COURSE a	DATES (From - To) b	MAJOR COURSES c

29. OTHER SERVICE TRAINING COURSES SUCCESSFULLY COMPLETED

VA DATA

30 a. GOVERNMENT LIFE INSURANCE IN FORCE ☐ YES ☐ NO
b. AMOUNT OF ALLOTMENT
c. MONTH ALLOTMENT DISCONTINUED
31 a. VA BENEFITS PREVIOUSLY APPLIED FOR (Specify type)
b. VA CLAIM NUMBER C-

AUTHENTICATION

32. REMARKS
33. PERMANENT ADDRESS FOR MAILING PURPOSES AFTER TRANSFER OR DISCHARGE (Street, RFD, City, County and State)
34. SIGNATURE OF PERSON BEING TRANSFERRED OR DISCHARGED
35 a. TYPED NAME, GRADE AND TITLE OF AUTHORIZING OFFICER
b. SIGNATURE OF OFFICER AUTHORIZED TO SIGN

DD FORM 1 NOV 55 214 REPLACES EDITION OF 1 JUL 52, WHICH IS OBSOLETE.

ARMED FORCES OF THE UNITED STATES
REPORT OF TRANSFER OR DISCHARGE

1

Appendix F

COMPUTER PRINTOUTS OF RETIREE PROFILES

Code for Retiree Profiles

1. Name
2. Street Address
3. City, State
4. BRANCH - Branch of Service: A, Army; AF, Air Force; N, Navy
5. RANK - E, Enlisted; W, Warrant Officer; O, Commissioned Officer
6. SERNO - Service Serial Number
7. AGE
8. SEX
9. SKILL - 1-29 (see Table 1)
10. EDLEV - Highest School Grade Completed
11. INSTRUCT - I, Rated Instructor; Y, Served as Instructor; N, Never served as instructor
12. MONTHS - Number of months served as instructor
13. STATE - State where retiree intends to retire
14. SALARY - Salary desired from second career job
15. EDCAR - Interest in vocational education as a second career: Y, yes; N, no; U, undecided
16. PRIMARY SPECIALTY - service designated specialty
    Specialty Number   Specialty Title
17. SECONDARY SPECIALTY
    Specialty Number   Specialty Title
18. USAFI AND SERVICE COURSES
    Course Number   Course Title
19. LICENSES AND CERTIFICATES
    Year   M, Military; C, Civilian   Name of license or certificate
20. CIVILIAN EMPLOYMENT EXPERIENCE
    Year begun   Year ended   Job description
21. SPECIALTIES - service assignments by specialty
    Number of years   Job title
22. COURSES INSTRUCTED - service instructing
    Specialty Number   Number of months   Course title
23. INSTRUCTOR TRAINING COURSES
    Year taken   Course title
24. OTHER STATES - list up to 5 in which retiree is willing to work
25. SKILLS - Retirees' skills applicable to vocational education: 1-29 (see Table 1)

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SEARCH = ? !USERS

$14 USERS.
TIME

$CLOCK TIME IS 07:34.
"EDLEV(12+);MONTHS(48+)SKILL(1);STATE(ARIZ),STATES(ARIZ,ANY).
OUTPUTS = ? ALL.

1.  PROFILE A
2.  STREET ADDRESS
3.  CITY, STATE
4.    BRANCH          =      AF
5.      RANK          =      03
6.     SERNO          = 3008358
7.       AGE          =      38
8.       SEX          =       M
9.     SKILL          =       1
10.    EDLEV          =      14
11. INSTRUCT          =       I
12.   MONTHS          =      55
13.    STATE          =
14.   SALARY          =    6600
15.    EDCAR          =       Y

16. PRIMARY SPECIALTY
        4344        ACFT MAINT OFFICER-INSTRUCTOR

17. SECONDARY SPECIALTY
        7524        EDUCATION SPEC

18. USAFI AND SERVICE COURSES
           0        BEG ALGEBRA 1
           0        BEG ALGEBRA 2

19. LICENSES AND CERTIFICATES

20. CIVILIAN EMPLOYMENT EXPERIENCE
          42       46        AUTO MECHANIC

21. SPECIALTIES
        4344       10        ACFT MAINT INST

22. COURSES INSTRUCTED
          28        ACFT MAINT OFFICER
           0        PRIMARY ACFT+ENGINE MECHANICS COURSE

23. INSTRUCTOR TRAINING COURSES

24. OTHER STATES
        MASS   CALIF    ARIZ     TEX

25. SKILLS
         1         3
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 1.  PROFILE B
 2.  STREET ADDRESS
 3.  CITY, STATE
 4.     BRANCH          =        N
 5.       RANK          =       E8
 6.      SERNO          = 3513356
 7.        AGE          =       37
 8.        SEX          =        M
 9.      SKILL          =        1
10.      EDLEV          =       12
11.  INSTRUCT           =        I
12.     MONTHS          =       79
13.      STATE          =     TENN
14.     SALARY          =     5600
15.      EDCAR          =        Y
16.  PRIMARY SPECIALTY
          3423          AVIATION STRUCTURAL MECH
17.  SECONDARY SPECIALTY
                        INSTRUCTOR
18.  USAFI AND SERVICE COURSES
             0          BASIC ELECTRONICS
19.  LICENSES AND CERTIFICATES
            50          M         INSTR TRNG
            66          M         SUPVS TRNG
20.  CIVILIAN EMPLOYMENT EXPERIENCE
            65          66        REAL ESTATE SALESMAN
21.  SPECIALTIES
                        3         INSTR IN INSTR TRNG
                        3         MAINT CHIEF OF OPERATING SQD
                        4         SHOP SUPV
22.  COURSES INSTRUCTED
            43          INSTR TRNG
            36          AVIATION STRUCTURAL MECH
23.  INSTRUCTOR TRAINING COURSES
24.  OTHER STATES
        ANY
25.  SKILLS
             1          15        26        27
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1. PROFILE C
2. STREET ADDRESS
3. CITY, STATE
4. BRANCH = AF
5. RANK = E6
6. SERNO = 14218185
7. AGE = 38
8. SEX = M
9. SKILL = 1
10. EDLEV = 12
11. INSTRUCT = I
12. MONTHS = 96
13. STATE = CALIF
14. SALARY = 5600
15. EDCAR = Y
16. PRIMARY SPECIALTY
    - 43171 AIRCRAFT MAINT TECH
17. SECONDARY SPECIALTY
18. USAFI AND SERVICE COURSES
    - 0 TYPEWRITING
    - 0 AIR FORCE INSTRUCTOR
19. LICENSES AND CERTIFICATES
    - 0 M MASTER INSTRUCTOR CERTIFICATE
20. CIVILIAN EMPLOYMENT EXPERIENCE
21. SPECIALTIES
    - 43171 10 ACFT MAINT TECH-INSTRUCTOR
22. COURSES INSTRUCTED
    - 93 MAINT TECH
    - 3 MAINT DOCUMENTATION
23. INSTRUCTOR TRAINING COURSES
    - 58 TECHNICAL INSTR COURSE
    - 64 ACADEMIC INSTR COURSE
24. OTHER STATES
    - ANY
25. SKILLS
    - 1

1. PROFILE D
2. STREET ADDRESS
3. CITY, STATE
4. BRANCH = AF
5. RANK = E7
6. SERNO = 14233977
7. AGE = 39
8. SEX = M
9. SKILL = 1
10. EDLEV = 12
11. INSTRUCT = Y
12. MONTHS = 72
13. STATE = GA
14. SALARY = 7600
15. EDCAR = Y
16. PRIMARY SPECIALTY
    - 43290 ACFT ENGINE SUPT
17. SECONDARY SPECIALTY
    - 47170 AUTO MECHANIC
18. USAFI AND SERVICE COURSES
    - 0 AIRCRAFT JET ENGINE MECHANIC
    - 0 JET ENGINE MECHANIC
    - 0 APPRENTICE AIRCRAFT MECHANIC
    - 0 J-57 ENGINE MAINTENANCE
19. LICENSES AND CERTIFICATES
20. CIVILIAN EMPLOYMENT EXPERIENCE
21. SPECIALTIES
    - 43290 10 ACFT MAINT
22. COURSES INSTRUCTED
    - 72 JET ENGINE
23. INSTRUCTOR TRAINING COURSES
    - 60 OJT ADMINISTRATIVE SUPV
    - 56 MGMT COURSE FOR AIR FORCE SUPVS
    - 64 STRATEGIC AIR COMMAND NCO ACADEMY
24. OTHER STATES
    - ANY
25. SKILLS
    - 1 3

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 1.  PROFILE E
 2.  STREET ADDRESS
 3.  CITY, STATE
 4.    BRANCH         =       AF
 5.      RANK         =       E6
 6.     SERNO         = 17024165
 7.       AGE         =       45
 8.       SEX         =        M
 9.     SKILL         =        1
10.     EDLEV         =       12
11.  INSTRUCT         =        Y
12.    MONTHS         =      120
13.     STATE         =
14.    SALARY         =     4600
15.     EDCAR         =        Y

16.  PRIMARY SPECIALTY
       43171         AIRCRAFT MAINT TECH

17.  SECONDARY SPECIALTY

18.  USAFI AND SERVICE COURSES
            0        HISTORY OF US

19.  LICENSES AND CERTIFICATES

20.  CIVILIAN EMPLOYMENT EXPERIENCE

21.  SPECIALTIES
       43171      10        ACFT MAINT TECH JET

22.  COURSES INSTRUCTED
           60        TECHNICAL INST COURSE
           60        INST SUPV COURSE

23.  INSTRUCTOR TRAINING COURSES
           53        GENERAL ACFT

24.  OTHER STATES
         ANY

25.  SKILLS
          1     3
 1.  PROFILE F
 2.  STREET ADDRESS
 3.  CITY, STATE
 4.     BRANCH         =       AF
 5.       RANK         =       E9
 6.      SERNO         = 17203479
 7.        AGE         =       38
 8.        SEX         =        M
 9.      SKILL         =        1
10.      EDLEV         =       12
11.  INSTRUCT          =        Y
12.     MONTHS         =      156
13.      STATE         =      TEX
14.     SALARY         =     6600
15.      EDCAR         =        Y

16.  PRIMARY SPECIALTY
        42390          ACFT ELECTRICAL SUPT

17.  SECONDARY SPECIALTY
        43171          ACFT MAINT SUPV

18.  USAFI AND SERVICE COURSES

19.  LICENSES AND CERTIFICATES

20.  CIVILIAN EMPLOYMENT EXPERIENCE
           44     46         MOTION PICTURE PROJECTIONIST

21.  SPECIALTIES
        42370      4         ACFT ELECTRICAL INST
        42390      6         ACFT ELECT SUPT

22.  COURSES INSTRUCTED
          156          ELEC SYS
           72          FUEL SYS

23.  INSTRUCTOR TRAINING COURSES
           46          INST TRNG COURSE
           55          ACADEMIC INST COURSE

24.  OTHER STATES
         ANY

25.  SKILLS
            1      11      25

*READ TO END OF FILE

SEARCH = ? ! TIME

$CLOCK TIME IS 07:54.
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